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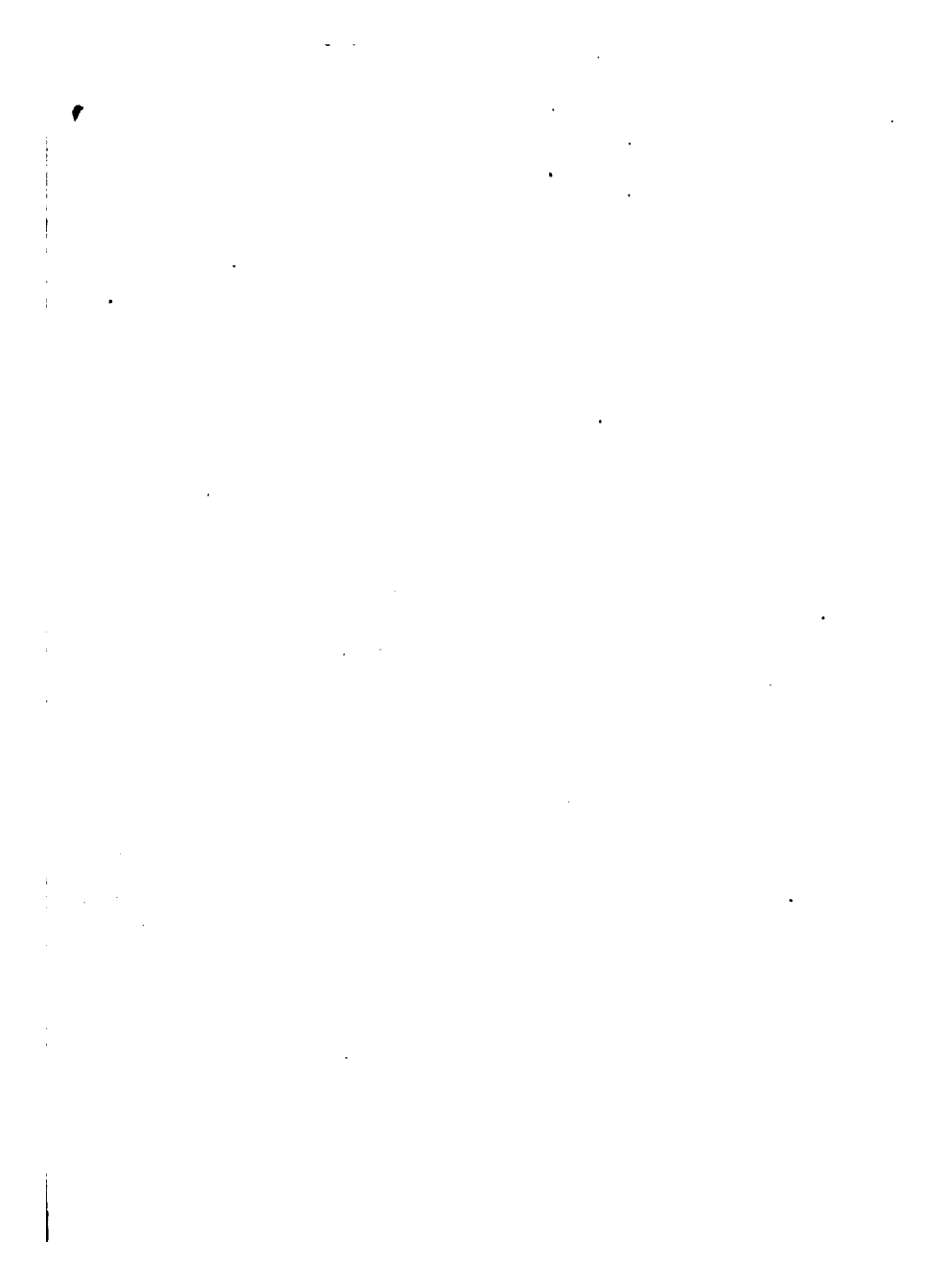
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✓ HOW TO TAKE CARE OF THE BABY

A MOTHER'S GUIDE AND MANUAL FOR NURSES

BY
FRANCIS TWEDDELL, M.D.

ALUMNUS BELLEVUE HOSPITAL, NEW YORK
FELLOW OF THE NEW YORK ACADEMY OF MEDICINE
ASSISTANT PHYSICIAN TO THE BABIES' HOSPITAL DISPENSARY, NEW YORK

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TO

JOSEPHINE HEMENWAY, M.D.

HOUSE PHYSICIAN OF THE BABIES' HOSPITAL, NEW YORK, SINCE 1897

THIS LITTLE BOOK IS DEDICATED

AS A MARK OF ESTEEM, AND GRATITUDE FOR MANY FAVORS,

BY THE AUTHOR.

PREFACE TO SECOND EDITION.

The author was very pleased to find how much the medical profession and the public appreciated his little book.

In the present edition the general plan is unchanged, but certain sections have been revised and brought up to date.

Summit, N. J.,

F. T.

April, 1913.

PREFACE.

IN presenting this little book to the public, the author's aim is to give simple, clear, and complete directions, especially as regards nursing and artificial feeding of infants, and disorders of digestion.

The chapters are complete in themselves, and the headings have been so arranged as to render a search for information on any subject an easy matter.

71 West 68th Street,
New York.

July 12th, 1911.

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THE NURSERY.

The nursery should be a large, airy room, above the ground floor, and with a southern exposure. Plenty of light, air, and sunshine are essential to the baby's welfare. The furniture ought to be of the simplest, with no upholstery; the bed of enamelled iron or brass, and the draperies of light, washable materials.

At the windows, both light and dark shades are needed, as the new born infant is very susceptible to light and therefore for the first few weeks the nursery should be kept darkened.

The floor should not be carpeted, only a few light rugs placed where they are most needed, and care must be taken to keep these scrupulously clean. No stationary washbasins or plumbing of any kind must be allowed in the room. Furniture and floors should be wiped daily with damp cloths, and not dusted.

Particular attention must be paid to the ventilation, which can be secured at all times without a draft by means of a window board about five or six inches wide and long enough to fit the window exactly when the lower sash is raised to insert it. This admits of a free passage of air upward into the room between the upper and lower sashes.

In addition to this, the nursery should always be aired for at least an hour, morning and evening, after the bath, and just before going to bed; while this is being done, the baby must be taken into another room.

No cooking, washing or drying of clothes should ever be permitted in the nursery at any time.

The system of hot water heating is undoubtedly the best, and open fires when the weather is not very cold, but it is not always possible to obtain these. When steam or hot air is used, a pan of water should always be kept in the room to prevent excessive dryness of the atmosphere. Iron, gas, or oil stoves are the worst methods of heating, and ought never to be used.

The temperature of the room should be kept at about 70°F. by day, and at night never above 64°F. even for a young baby; and as the child grows older, this can be gradually reduced until he becomes accustomed to sleeping in a cold room. The window should be partly opened top and bottom at night, more or less, according to the weather, beginning from the time the child is two or three months old, if the temperature outside is not freezing. After the age of six months it should be opened in any weather, unless the child is delicate or ill.

Care must be taken that the cold air does not blow directly on the baby, and that he has sufficient covering. With the exception of the mother or nurse, no one else should be allowed to sleep in the room.

Although it is essential to keep a child thoroughly warm, a great deal of harm can be done by keeping the nursery too hot. A child kept in hot rooms loses his appetite, becomes pale, perspires easily, loses weight, and is subject to colds and indigestion.

No gas should be allowed to burn in the nursery at night, and where there is no electric light, a wax night light should be used.*

In summer, the windows of the nursery should be

Screens. fitted with screens to keep out flies and mosquitoes. Some babies are badly poisoned by mosquito bites, and one kind of mosquito can give the child malaria.

Flies are dangerous because they may alight on the nipple of the baby's bottle or on the food, and a fly's feet can bring germs from wherever their last resting place may have been. Contagious diseases and other ailments are often transported in this way.

THE BABY'S BED.

From the first a baby ought to have a separate bed of brass or enamelled iron which does not rock. The mattress should be of hair, and *Bed and Bedding.* covered with an India-rubber sheet, then a cotton pad, and, finally a cotton (not a linen) sheet. For the first few weeks it is better for the infant to lie with his head low; a pad doubled under the head is sufficient, after this a small hair pillow is best, as feathers are too heating.

For coverings use a cotton sheet, warm woollen blankets, and when necessary, an eiderdown quilt. Have all coverings sufficiently warm, but light, and never keep him so hot that he perspires, as this is very weakening, and predisposes him to catching cold. If the feet are cold, a hot water bottle covered with a flannel bag should be placed in the bed near them, but take great care that it is not hot enough to burn the skin.

All the bedding should be thoroughly aired every day, and the mattress and pillows shaken and turned. Sheets and pads which have become wet or soiled should never be used a second time before washing, and care

must be taken that they are thoroughly dry before making up the bed.

The crib should be placed in such a manner that the light will not fall directly on the baby's eyes, and never between two windows or doors, or where a draft can blow directly over him. A screen placed around the bed is very useful in preventing this.

CLOTHING.

The clothing for infants should be extremely simple, and moderately snug-fitting, so that there shall be no wrinkles to hurt the baby, and at the same time they should be loose enough to admit of free circulation and unhampered movements.

In winter, wool is the best material for undergarments for babies, but with an admixture of silk or cotton, and not of the heaviest grade, as too thick garments will make a child delicate and very sensitive to changes, and are quite unnecessary even in winter if the nursery is kept at the proper temperature. When the baby is taken out for an airing, changes in temperature must be met by sufficient outer wraps.

In summer the underwear should be of the lightest grade of silk and wool, or cotton and wool.

For the first six weeks, an infant should wear a plain flannel band rolled smoothly about the abdomen and sewn, not fastened with safety pins. This is later replaced by the knitted band with straps over the shoulders. Over this, in winter, is worn the woollen undervest with long sleeves and high neck. The diaper is then pinned to the bottom of the vest to

prevent the shirt from working up about the body, and also to keep the diaper from slipping down. Diapers should be of birdseye cotton, or of stockinet, but not of linen. In summer, the undervest can be omitted, and the diaper pinned to the band. Rubber diapers should never be used except for a short time when travelling, as they act like poultices when wet.

The baby's feet should be covered with knitted or crocheted booties, and care taken that the feet are always perfectly warm. In summer the booties are replaced by soft kid ones, and thin socks worn under them next to the skin.

The flannel skirt should be supported from the shoulders, and not pinned about the body on a tight band; then a simple little dress, preferably of nainsook, and if the weather is very cold, either a knitted or a flannel jacket. For the first three weeks, a soft cashmere or woolen shawl should be wrapped about the baby, covering the head as well.

When the baby is taken for an airing, his coat should be very warm and soft, but not heavy, and the cap preferably of silk with an interlining of flannel; caps which are so warm as to induce perspiration must be avoided, and equally so the muslin cap or bonnet which does not give sufficient warmth in cold weather. In winter the child's hands should be covered with woolen mittens, securely pinned to the sleeves of his coat.

A baby's night garments, after he has passed the stage of infancy, when they are very much the same as those worn in the daytime, should consist of a shirt, and a woolen union suit with feet.

It is not advisable to allow children of any age to go barelegged, except in very hot weather, and then, the fewer clothes they wear the better, as they will not be so weakened by the heat.

Bare legs. A baby should not be kept in long clothes beyond the age of six months, as they hamper his movements at an age when kicking will be very beneficial to him; but care must be taken not to attempt the change in very cold weather, or if the baby is already suffering from a cold. When the clothes are shortened, long stockings must be provided, and soft broad-soled kid shoes.

When to shorten a baby's clothes. As a child gets older, and takes more exercise, his clothing ought to be lighter, especially in the house, and his underwear should be principally of cotton. Woolen stockings ought never to be used, as they cause the feet to perspire and become easily chilled. *Clothing of older children.* Leather leggings are not to be recommended for the same reason. Older children should gradually discontinue wearing woolen garments next to the skin.

List of Clothing for a Young Baby.

The following list is about the smallest amount of clothing that will suffice for a small baby and should be in readiness when the child is born.

Four dozen diapers.

1 yd. white flannel for binders.

4 silk and wool, or cotton and wool shirts.

8 flannel petticoats.

6 plain slips for night and day use, during the first five or six weeks.

- 4 pairs knitted or crochettèd bootees.
- 3 knitted or flannel sacques.
- 2 soft shawls.
- 1 warm cloak.
- 1 hood.
- 1 pair mittens.

After the first six weeks 4 knitted bands with shoulder straps will be required to replace the flannel bands, and six plain little dresses for use in the day time.

Complete layettes can be had at various prices at any of the large dry-goods stores.

CARE OF THE NAPKINS.

All wet napkins must be removed at once from the nursery and put to soak in a pail of water with a cover until the time for their daily washing arrives. If they are soiled, they should receive a rough washing at once. They ought to be thoroughly boiled, washed and ironed once a day, and care must be taken that all napkins are perfectly dry before using. A napkin should never be used a second time until it has been thoroughly washed.

HOW TO LIFT A BABY.

A new-born infant should be handled very little, that is, no more than is absolutely necessary in bathing and caring for him, and when changing his position from time to time while lying in the crib.

Lifting a new-born infant.

In lifting a young baby never grasp him around the chest or abdomen. The best way is to catch hold of his clothing below the feet with the right hand, and lay the palm of the left hand under his back, with

the fingers extended under his head and neck. In this way the entire spine and head will be supported.

Never lift a baby under six months old without supporting his head.

Older children should be lifted by grasping the body under the arm-pits, never by the wrists or arms. Serious injury is often inflicted by lifting a child in this way.

Lifting older children.



MANNER OF LIFTING A BABY

BATHING.

For the first few days after birth an infant should be carefully soaped and sponged with water at 100°F. while lying on the nurse's lap, and only a small part exposed at a time, in order to prevent the baby's catching cold. Care must be taken not to uncover or wet

Bathing the first few days.

the navel, at the time. When the cord falls off and the navel heals, which usually occurs about the tenth day, the full tub bath should be given daily, and preferably in the morning, about two hours after the first feeding.

Time for a bath. This time is most convenient as the baby will then receive his next feeding soon after the bath, and will usually go to sleep immediately after. After the fourth month there is no objection to giving the bath just before bedtime, but never less than an hour after a meal; in that case a little sponging in the morning is necessary.

The temperature of the room in which the bath is to be given should be not less than 70°F. and it is better to give it in front of an open fire if possible. The temperature of the bath must be between 98° and 100°F. for the first six months; after that, it can be given at 95°; a much lower temperature than this is not sufficient for cleansing purposes.

The following articles are required, and should be in readiness before beginning the baby's bath, so that it may be given quickly and without interruption.

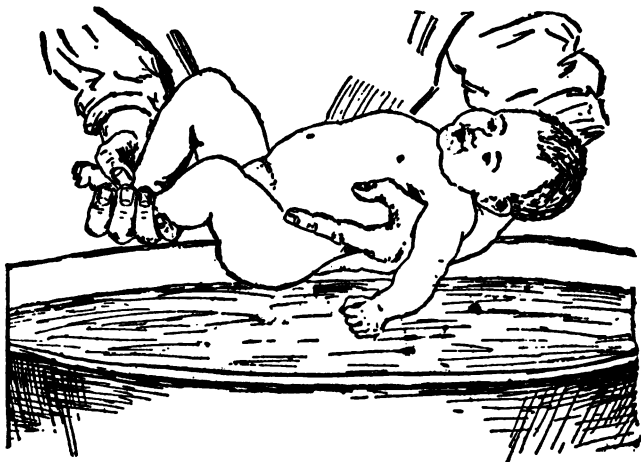
Articles required. An oblong rubber or tin bath-tub placed on a low table.

Bath thermometer.

A low rocker without arms for mother or nurse.

A rubber apron for mother or nurse, and a large piece of flannel or flannel apron to be worn over it. On a table close at hand should be placed the soap, either castile or a very fine toilet soap, soft towels for drying, a threaded needle for sewing bands, scissors, soft hair brush, absorbent cotton or soft lint in small squares, a cup containing a solution of warm boric acid (one-half teaspoonful to a pint), talcum powder, a

piece of aseptic gauze, and a soft washcloth instead of a sponge, as the latter can never be kept clean enough to make it safe for a baby's use. In case of chafing, Salvacea or zinc oxide ointment can be applied instead of the dusting-powder. The baby's clothes should be slightly warmed, and hung in readiness on a clothes-rack near by.



LIFTING A BABY IN AND OUT OF A BATH

The bath-tub should then be filled two-thirds full, and after the temperature is regulated, the baby is taken into the mother's or nurse's lap and carefully undressed. This can be done with very little turning or lifting; lay the child flat on his stomach while unfastening his garments at the back, then turn him once over, roll his garments up and remove them over his head; he can thus be completely undressed with very little handling.

*How to give
the bath.*

He should be wrapped in the warm flannel apron while his eyes are washed with a bit of absorbent cotton dipped in boric acid solution, then his face washed in the warm water, and after that the head and ears can be soaped with the piece of gauze, washed and thoroughly dried. When this is finished, the rest of the body is soaped, and he is then carefully lifted into the bath. With a young infant, care must be taken to support his back and head with the left hand, while the right hand grasps the ankles. The baby is placed in a semi-reclining position in the tub, and the body sponged. Particular care should be taken in soaping and washing the genitals, as scrupulous cleanliness is very essential to the health of these parts. The baby should not be kept in the water longer than three or four minutes. If a child shows any fear of the bath it is advisable to put a sheet over the tub and then gently lower him in it into the water.

Now put the towel on top of the flannel apron, take the baby out of the bath, lifting him carefully in the same manner as before, and roll him in the bath-towel and apron. Dry him thoroughly, but without rubbing, then dust him with a little powder, paying particular attention to the creases, put on his band, diaper and then the clothes. Never put his clothes on over his head, but draw them over the feet, catch hold of the feet and elevate the body slightly, then pull them all the way up; the sleeves can then be drawn on with greater ease.

When the baby is dressed the mouth should be carefully cleaned with a boric acid solution by means of a swab made from absorbent cotton twisted around a toothpick.

*Cleansing of
mouth, nose
and ears.*

The ears and nose should be examined, and treated in the same manner, but of course using a clean swab in each case.

The daily bath should never be omitted, except in the case of severe illness or some skin trouble, such as eczema. Soap should not be used on children suffering from prickly heat. In its place a cupful of bran tied in a muslin or cheesecloth bag should be squeezed in the water until it has a milky appearance. With infants that have very delicate skins the bran bath can be continually used.

If a child has hives or heat-rash a soda or starch bath is very soothing, if soda is used a table-spoonful of bicarbonate of soda should be added to the water; if starch, a half-cupful of powdered laundry starch. These baths should replace the use of soap for a few days when the buttocks are chafed.

A salt-bath is useful in the case of delicate children, and is prepared by adding a teacupful of common salt or sea salt to each two gallons of water.

Sponge-baths are very useful in cases of fever, and also give great relief to infants and children in very hot weather, and will ensure a good night's rest to a child who would otherwise be restless and uncomfortable. In the case of fever, the addition of alcohol, about eight ounces to a quart of warm water, to a sponge bath is often useful in reducing the temperature. Some children object to sponge-baths, in that case give the ordinary tub bath, making it a little cooler than usual.

A mustard bath is sometimes used in convulsions and prostration. It is prepared by adding a heaping tablespoonful of mustard to five or six gallons of warm water. But first mix the mustard in a cup or bowl with a

little water and make it into a smooth paste, then add it to the bath, otherwise there is danger of particles of mustard adhering to the skin and causing burns. The child should not be kept in it longer than five minutes, and care must be taken that none of the water gets into the eyes.

Cold water should never be used for bathing children under three years of age, but beyond that *Cold douches.* age it is often useful in the form of douches applied to the throat and chest, or spine, for the purposes of strengthening them, and followed by vigorous friction.

CARE OF THE EYES.

The eyes of a new-born infant need very careful cleansing; carelessness in this respect often leads to severe inflammation of the eyes, and sometimes blindness.

Eyes of a new-born infant.

For the first two weeks they should be cleansed in the following manner. Dissolve one half teaspoonful of boric acid powder in a pint of warm water. Carefully separate the lids, and squeeze a little of the warm solution into the eye from a piece of absorbent cotton, and wash the eyelids carefully. Use a fresh piece of absorbent cotton for each eye.

When the baby is older, if the eyes are in a healthy condition, it is sufficient to cleanse them daily with boiled water and a piece of old linen kept for that purpose, tearing off a fresh piece every day.

If the eyes become inflamed, or if the lids stick together, and any discharge appear, they should be cleansed every hour with the warm boric acid solution, and a little vaseline applied to the eyelids at night. A

Inflammation of the eyes.

physician should be consulted immediately about this condition.

The sun should never be allowed to shine in a baby's eyes, and almost equally harmful is a strong

Precaution. reflected light when the sky is overcast. A parasol with a green lining is the best protection against this. Veils are undesirable for a baby's use, and may injure the eyesight.

CARE OF THE GENITALS.

The genitals of a baby should be carefully cleansed once or twice a day with boric acid solution (two teaspoonfuls to a pint of warm water), by means of a piece of clean, absorbent cotton. In the case of boys, the foreskin should be gently pushed back once in every two or three days, and the parts underneath carefully washed.

Any inflammation of these parts, or discharge from them, should be brought to the notice of the family physician without delay.

AIRING.

Fresh air is absolutely necessary to the well-being of a baby; in order that his lungs may be strengthened and his blood purified, a generous supply of oxygen is as essential to his development as his daily food. He must, however, be very gradually accustomed to this, and it can best be done at first by airing the room thoroughly, at least twice a day, and oftener if possible, meanwhile removing the baby to another room,

*Airing
of Room.*

and bringing him back only when the room has been rewarmed to the proper temperature.

If it is summertime, or if living in the south, the baby may go out for an airing in his baby-carriage when one month old, provided the sun is shining and it is not windy or damp, but in winter in the north it is often not advisable to take a young baby out for two months or more after birth.

His daily airing, however, can be accomplished in the following manner: dress him exactly as if he were going out, put him in his baby-carriage, then take him in a room where the windows are all wide open from the top, close the doors, so that there will be no draft, and wheel him about the room for a quarter of an hour, gradually lengthening the time to an hour or two, morning and afternoon. In this way his lungs become gradually accustomed to taking in the cool air, his color and appetite will improve, and he will be far less likely to catch cold than if forced to breathe a furnace-heated atmosphere all day long.

After a few weeks of indoor airing, the child can be taken out in the open on a mild, sunny day, but this should not be done under the age of four months if the temperature is below freezing, nor on days when it is below 20° until he is a year old. In fine weather he should be out for four or five hours each day. In winter the best hours for his airing are from 10 A. M. to 3 P. M., in spring and autumn from 9 A. M. to 4 P. M., but in midsummer, on hot days, his outings should be taken in the early morning, and in the evening; he must, however, never be kept out after the

dew has begun to fall. In the heat of the day he is better off on a cool veranda.

Sleeping out of doors. Sleeping out of doors is very beneficial to a baby, and he should be trained to have his daily nap out in the open whenever this is possible, but care must be taken to shield him from strong winds, and in summer he should be protected by a mosquito netting.

Precautions. The only times when it is not advisable to send a well baby over four months old out are on foggy or very windy days, when it is raining, snowing, or the temperature below 20° or if it is cloudy, and much melting snow on the ground. On days like these, the indoor airing can always be substituted; it will also be found useful after an illness, when it is not advisable to take the child out in the open.

Never allow the light to shine directly into a baby's eyes, a parasol lined with green should always be provided to prevent this, as serious injury to the eye-sight may result from neglecting this precaution.

Never send a baby out with cold hands and feet, and be sure he is sufficiently warm; but, on the other hand, do not overwrap him and cause him to perspire, as this is the surest way for him to catch cold.

Importance of out-of-door air and exercise. A child over one year old can stand much cooler air, and when old enough to exercise he should be allowed to run about in almost any weather, properly protected from the cold or damp, and provided he is in good health. Children kept too closely housed, in overheated and badly ventilated rooms, and deprived of, or given insufficient outdoor air and exercise, are bound to suffer as a result. They lose their appetite, become pale and anaemic, sleep badly and catch cold easily.

EXERCISE.

In early infancy the only means a baby has of taking exercise is by crying, kicking, and waving his arms; and he should be allowed to indulge in these exercises, in order to expand his lungs and develop his muscles. A half hour's lusty crying in the day is actually beneficial to an infant, and after the first month he should be allowed to kick on the bed for a few minutes two or three times a day, with his arms and legs quite free. Even from birth he should not be left to lie quiet for too long a period of time, but must be picked up and carried about occasionally. This is especially true of weakly infants or those suffering from malnutrition; their position should be frequently changed, and they should be carried about more often than a healthy child, and also rubbed two or three times a day with cocoa butter. These measures all help to strengthen an infant's vitality, and are as necessary to his development as the routine in regard to bathing, sleeping, etc.

Great care must be taken in regard to lifting a young baby, and he must never be placed in an upright position without proper support, as spinal deformities often follow neglect of this precaution. When a little older, babies are often forced to stand upon the lap, and if they are then suffering from rickets, any deformity of the legs, such as bow-legs, or knock-knees, may be aggravated.

A child should never be taught to walk; he will do so readily enough when his legs are able to support him, and only harm can come from forcing him too soon.

Before he walks he should be put on a heavy blanket

Daily Exercise. or quilt in an exercise pen for an hour or so twice a day, and allowed to kick and roll about to his heart's content. When he has once learned to walk, there will be no difficulty in his getting sufficient exercise if he is strong and healthy, and allowed enough freedom to do so. All romping and violent exercise should be confined to the earlier part of the day, as it may prove harmful if indulged in just before bedtime.

As children grow older, they should play more out-of-doors, and all forms of exercise should be encouraged, provided they are never so violent or prolonged as to lead to exhaustion.

Indoor Exercise. Indoor exercise for older children should be confined as much as possible to very rainy weather, and the temperature of the room regulated to be not above 65°F. Their clothing should be loose and light.

SLEEP.

Sleep a guide to Health. Sleep in infancy is a very accurate guide to the child's physical condition. It should be quiet and regular, and any signs of prolonged restlessness may be taken as a symptom of some disorder, usually digestive.

Amount of sleep during infancy. A baby's sleep during the first few days of life should be almost continuous, his only waking intervals being for nursing and bathing. For the first month he should sleep twenty-two hours out of the twenty-four; after this, his periods of waking will be gradually lengthened until at six months his day's sleep will be

arranged as follows. A two hours' nap in the morning, and another about the same length of time in the afternoon. At six P. M. he should be put to sleep for the night, except that at ten o'clock his diaper should be changed, and his night feeding given, but without disturbing him in the crib. If he is quite well, and has not developed any bad habits, he will fall asleep immediately after this, and should not wake until six the next morning.

Sleep after 2 years. At about two years of age a child should learn to sleep from 6 P. M. to 6 A. M. without feeding. This twelve hour's rest at night should be continued up to six years of age.

Day-naps. From the eighteenth month, one of the day-naps may be discontinued, but the child should be encouraged to take one nap a day for as long a time as he will, up to four years of age, or longer.

Position of child during sleep. It is important to turn a young infant from time to time, for if he is allowed to sleep too much on one side, it is liable to cause deformity of the head. He should never be placed on his back to sleep, and even when awake, only when the mother or nurse is constantly present, for if an attack of vomiting were to occur he would be very likely to get food into his windpipe.

Directions for children's sleep. A baby must sleep alone from the first; lying with the mother is very apt to lead to irregularities in nursing, etc., and there is also the danger of overlying. Older children should have separate beds, thereby minimizing the chances of any infection, and also ensuring a good night's sleep for one child in the event of the other's being restless or ill.

The baby should be undressed and prepared for bed, and the diaper changed before giving the bottle; he should be laid down immediately after feeding while he is still awake, the room darkened and the window opened.

How to prepare a baby for sleep. He must learn to go to sleep by himself, and all habits such as rocking or patting, or the giving of a pacifier or finger to suck, ought never to be allowed, as they will only lead to more trouble in the end. If he is restless and refuses to sleep there is some good reason for it, and this must be found and remedied, as nothing else will produce any lasting results, but will only be conducive to bad habits in addition. Soothing syrups and drugs must never be administered under any circumstances by a mother or nurse; if a drug is given, it must be on the advice of a physician.

A baby may cry for a few minutes before going to sleep, this is exercise for his lungs, and unless it is prolonged no notice should be taken of it. It is also a mistake to pick up a baby immediately if he wakes and cries at night, for if left alone, he will often go to sleep again. If he does not, and before taking him out of bed, try turning him over, this may accomplish the desired result.

Quiet. While the baby's room should not be noisy, it will never be necessary to whisper or make any unusual efforts at quietness; if he has been accustomed from the first to the ordinary household sounds, he will not notice any noises, unless they are very sudden, shrill, or unusual.

If, however, a baby awakes often and is restless, or stays awake a long time, it will probably be

Sleeplessness and its common causes. due to one or another of the following causes:

1. In a nursing baby, frequently hunger.
2. Thirst.
3. Cold feet or wet diaper.
4. Insufficient or too much clothing.
5. Derangement of digestion, due to improper food, or irregular feeding, over-feeding, or too much night feeding.
6. Bad or irregular habits.
7. Bad air and insufficient ventilation.
8. Dentition.
9. Excitement or nervous fears, sometimes induced by romping and playing with a child just before bed-time.

These are the most common causes of insomnia in infancy, but other reasons may also exist, such as anaemia or malnutrition; imperfect breathing due to adenoids or tonsils, or the earliest symptoms of hip-disease or some other illness. In dealing with any of these conditions, it is imperative to consult a physician.

Having investigated and corrected any mistakes in feeding or habits of a baby suffering from sleeplessness, whatever the cause may have been, the following routine should be observed. A simple diet, at regular intervals, no eating or drinking at night except water, no excitement, plenty of fresh air in the day-time, and at night a quiet, dark, and airy room. A warm bath before going to bed will often be found beneficial, and in the case of older children, the reduction of foods that induce flatulence, such as sugar, starch, etc.

A delicate, nervous child is often a bad sleeper, and

A nervous child. in this case the same rules are to be followed, particular attention being paid to keeping him from any excitement; if the child is older, no study should be allowed for a time, but instead, plenty of exercise in the fresh air. If this routine is rigidly followed, there is no reason why the condition should not be overcome even if the nervousness is hereditary.

Habit of sleep. In health, sleep is largely a matter of habit, and it sometimes happens that a baby develops the bad habit of sleeping longer in the daytime, and staying awake at night. If this is not due to any other condition, it is easily remedied by forcing him to remain awake longer in the day, he will then become tired, and is more likely to sleep at night.

Sleep of early infancy. Although a young infant's sleep should be quiet, it is not very deep, and it is not until about three years of age that a child sleeps heavily.

NURSING.

It is undoubtedly the duty of every mother to nurse her baby, and regard for his welfare should induce her to attempt it even if the chances of success seem small, except in the following conditions rendering it an impossibility, such as:

A defect in the nipples or the absence of milk.

Conditions making nursing impossible. An infant unable to suck properly, owing to his being very weak, or tongue-tied, or having a cleft palate. (In the last case, the milk comes out through nostrils.)

In addition to these, are certain conditions of the

Conditions prohibiting nursing. mother when nursing should be absolutely forbidden. These are as follows:

1. When the mother is suffering from tuberculosis in any form.

2. When she has a serious disease of the heart or kidneys.

3. When she has any infectious or contagious disease, such as diphtheria, pneumonia, whooping cough, etc.

4. When she is epileptic or choreic.

5. When she is losing flesh and strength, and is much debilitated.

Successful nursing. A great deal will depend upon the care of the breasts and nipples, and the regulation of the mother's diet and habits. The following simple rules must be adhered to if success is to follow.

Care of the nipples and breasts. A day before the arrival of the infant the nipples should be carefully washed with soap and water and a soft brush used to keep the openings in the nipples clear. Before and after nursing, the nipples must be washed with a solution of boric acid and carefully dried.

It is very important to prevent sore nipples, and if they are at all tender after nursing, the washing with boric acid should be followed by sponging with alcohol, and then drying. I have also found an application of Salvacea, or zinc oxide ointment or albolene very healing. A nipple shield may be used, but most infants refuse to nurse from them. The breast must be squeezed so as to fill the nipple before putting the baby to it.



NIPPLE SHIELD

If the nipples are very sore and bleeding, it is sometimes necessary to keep the baby from nursing for a day or two. The breasts ought then to be massaged with sweet oil, first washing hands and breasts with soap and water. The breasts should be massaged all the way around with firm pressure, starting from the base, and ending up at the nipple. Afterwards a breast pump must be used to draw off the milk.

When they are healed, the baby should be put to the breast only every other nursing for a day or so. If the milk is abundant, pump and keep it in a bottle, using it for the intermediate feedings.

Large pendulous breasts should be supported at first by bandages, and later by loose corsets. If the milk seems slow in coming or is scanty, the breasts may be massaged for five or ten minutes two or three times a day to increase the flow.

1. A nursing mother should lead a simple, regular life, on a diet to which she has been ac-

Rules for a nursing mother's guidance. accustomed, but avoiding too much meat, strong coffee, pastry, candy, spices, or highly seasoned dishes. Plain, well-cooked food should be given her, with plenty of milk and no alcoholic beverages, except when prescribed by a physician.

2. She needs plenty of sleep, at least eight hours, and if she has had a bad night, she should take a nap in the daytime.

3. She must have regular exercise, at least one hour's walk morning and evening, but she ought never to tire herself to the point of exhaustion.

4. She must avoid late hours, worry, and excitement, as the effect of these is most detrimental to the milk.

5. She should keep her bowels regular by means of proper diet and exercise, and, if necessary, by a mild cathartic, such as Cascara, Citrate of Magnesia, Rochelle Salts, Glauber's Salts, etc., but this should not be continued indefinitely. Two or more bran biscuits (see food recipes) a day included in her diet will help in keeping her bowels regular. If the constipation becomes chronic, however, she should consult a physician.

6. A nursing mother often becomes anaemic, with the result that her milk is deficient in iron, thereby causing the child to become anaemic also. It is a good thing therefore, when in this condition, for the mother to take some form of iron during the nursing period. Iron and Ammonium Citrate in two or three grain tablets taken once or twice a day is the best preparation, as it is not constipating like most of the other preparations of iron.

7. With the above exceptions she should take no

drugs or medicines unless they are ordered by the physician.

The infant should be put to the breast five or six hours after birth, and then every four hours for the next two days; after that according to the following schedule.

<i>Schedule for nursing.</i>				
1st & 2nd day Every 4 hours	3rd day to 1 month Every 3 hrs.	1 to 3 months Every 2½ hours	3 to 5 months Every 3 hours	After 5 months Every 3 hrs.
4 A. M.	6 A. M.	6 A. M.	6 A. M.	6 A. M.
8 A. M.	8 A. M.	8:30 A. M.	9 A. M.	9 A. M.
12 P. M.	10 A. M.	11 A. M.	12 A. M.	12 P. M.
4 P. M.	12 P. M.	1:30 P. M.	3 P. M.	3 P. M.
8 P. M.	2 P. M.	4 P. M.	6 P. M.	6 P. M.
	4 P. M.	6:30 P. M.	10 P. M.	10 P. M.
	6 P. M.	10 P. M.	2 A. M.	
	8 P. M.	2 A. M.		
	10 P. M.			
	2 A. M.			

After the first month the last nursing in the evening should be at 9 P. M. to be correct according to the intervals, but I have found by experience that the feeding at 10 P. M. is much more satisfactory, and the child is more likely to sleep longer and better.

The milk in the breasts does not secrete in sufficient amount until the third or fourth day, and sometimes later.

Regular nursing habits. Regular habits in nursing should begin from the first, and strict attention to this matter is most important. The baby must never be allowed to nurse longer than twenty minutes, and should be given one breast at one feeding and the other breast at the next, unless he is older and requires more, when he may be allowed to nurse ten minutes at each breast for every feeding.

The baby requires no other food on the first day, except a little warm water with milk-sugar, $\frac{1}{2}$ oz. sugar to 10 oz. water; of this he may have from four to eight teaspoonfuls, between nursings.

The first day. He should be awakened in the daytime to nurse, but allowed to sleep after 10 P. M. and in this way an infant will soon be trained to sleep all night, and at the age of five months a healthy baby will require no nursing between 10 P. M. and 6 A. M. This can be easily accomplished by never deviating from the regular feeding schedule, and will be of great benefit to both mother and child. Infants can often be trained at an earlier age to sleep all night without nursing.

Mixed feeding. It is advisable to begin giving a baby one bottle the twenty-four hours from the time he is one or two weeks old, beginning with formula No. 2 and gradually increasing the amount so as to be suitable for his age.

The reasons for this are various. The mother may be suddenly taken ill, or unavoidably absent, or her milk may be temporarily unfit for the baby's use, as a result of violent emotion, menstruation, etc. As a precaution, therefore, against any of these eventualities, it is wise to accustom the baby at an early age to taking the bottle, for it is much more difficult to get him to do so when he is older. It also makes it much easier later to wean him.

When milk does not agree. It may sometimes happen that the mother's milk does not agree with an infant, but she should not for that reason give up nursing until every effort has been made to discover the cause, and, if possible, to rectify it. If the infant shows symptoms of indigestion,

viz., vomiting, colic, diarrhoea, or constipation, it is necessary to find out to which of the following conditions this is due:

1. The child takes too much at each nursing.
2. The child takes the milk too quickly.
- Abnormal* 3. There is too much fat in the milk.
- conditions.* 4. There is too much protein in the milk.
5. The milk is scanty.
6. The milk is poor in quality.

More than one of these conditions may exist at the same time.

The first two conditions may be ascertained by carefully weighing the baby before and after nursing. The child need not be undressed for this purpose, and the scales must be accurate. Now suppose an infant one month old, that is not thriving and weighs only six pounds and eight ounces, weighs four or five ounces more after nursing for twenty minutes, we then know that it has taken too much and that being underweight it should not have had more than $2\frac{1}{2}$ oz., or 3 oz. At the next hour for nursing, we weigh the baby, allow it to nurse two minutes at one breast, and then weigh it again. After that we give it the other breast, weigh it once more, and in this way we ascertain not only how much the child has taken, but how quickly. If the amount is too large we shorten the time of nursing at each breast to five, six or seven minutes, depending upon the amount taken, or give it only one breast at a nursing, and weigh the child before and after feeding until we have regulated it to the requisite amount. Some infants can take at the rate of as much as 1 oz. of milk a minute during the

first few minutes, and thus not only overload their little stomachs but also nurse too quickly.

Signs in a nursing baby which gets too much milk.

- Signs of too much milk.*
- a. Shows rapid gain in weight.
 - b. Seems overfed after nursing.
 - c. Vomits after meals.
 - d. Has wind and colic.
 - e. Perspires on head and neck.
 - f. Is drowsy and heavy, and sleeps a great deal, but may be restless from colic and wind.
 - g. Passes much urine, diapers are always wet.
 - h. Has frequent large stools.

One or more of these symptoms may be present.

If the trouble is due to too quick nursing, the child can be put to the breast for two minutes at a time with intervals of one or two minutes, or the mother can compress the base of the nipple between the first and second fingers while the child is nursing. The latter method will be found easier for both mother and child. If this does not succeed, nurse less.

In the conditions under headings Nos. 3 and 4, Page 36, the infant will invariably show symptoms, such as vomiting, colic, green stools, diarrhoea, or constipation, restlessness, sleeplessness, etc.

Too rich milk.

The milk is made too rich by:

1. Too rich foods.
2. Too little exercise.
3. Mental excitement.
4. Emotional disturbances, grief, temper, etc.
5. The onset of menstruation.

Having previously ascertained that the child is not taking too much, nor feeding too rapidly, we can be

reasonably certain that the milk is too rich in either fat or protein, or both. We therefore proceed as follows:

First, remove the milk from the breast by means of a pump, obtainable at any first-class drug store, and have it analyzed in a laboratory.

Treatment. While it is advisable to know whether the fat or the protein are at fault, the treatment in both cases is the same. The infant should be given, before each nursing, an ounce of warm water which has been previously boiled, and, if necessary, slightly sweetened with $\frac{1}{4}$ teaspoonful of milk sugar. This can be given from a regular feeding bottle and gradually discontinued as the child improves. Lengthening the intervals between the feedings to at least three hours also tends to make the milk poorer in quality. The first few ounces taken from the breast are not as rich as the last ones, therefore the child should not be allowed to drain the breasts, and must not nurse as long as he has been accustomed to doing. The ounce of warm water which he receives before nursing dilutes the milk, and at the same time brings the quantity up to the requisite amount.

Rich milk is very often the result of the mother's mode of living, and neglect of the rules for diet, exercise, etc., which have already been enumerated. An improvement in the milk will often follow strict attention to these matters, particularly by reducing the amount of meat, and prohibiting alcohol in any form; also requiring the mother to take daily exercise in the open air. It sometimes happens that the mother's first menstruation period, and perhaps subsequent ones, will be responsible for indigestion in the infant; when this happens, it is usually better to give the

bottle at alternate feedings during the time of menstruation.

If the child's symptoms do not improve after diluting the breast-milk by giving water before nursing, lengthening the intervals between nursings to three hours, shortening the time of nursing, and careful regulation of the mother's diet, it will then be necessary to put the child on the bottle, pumping the breasts meanwhile. When he shows signs of improvement, two or three days after, he can be gradually brought back again to the breast. If this is followed a second time by an attack of indigestion, he should be weaned, and it is imperative to do this before the child's digestion becomes too much weakened.

Signs in a nursing baby which does not get enough milk:

- Scanty milk.*
1. Is not satisfied after nursing.
 2. Does not vomit nor suffer from colic.
 3. Is fretful and impatient while nursing.
 4. Little gain in weight.
 5. Does not sleep enough and is restless.
 6. Passes little urine, and the diaper may be stained yellow or brick-red.
 7. Has one or two small stools a day.

It is easy to determine when the milk is scanty by weighing the child before and after nursing. When this is the case, the mother should be given an abundant diet, with plenty of meat and milk; and, if she is anaemic, a preparation of iron, as mentioned before.

A mother who has not enough milk should not on that account be overfed. A mother with her first child often does not secrete much milk in the first few weeks. She should be encouraged and given hope and confidence that plenty of milk will soon appear. In the meantime, the infant should be bottlefed, after

being regularly put on a few minutes at each breast. A bowl of corn meal mush (see recipes) taken at night will greatly help to increase the supply of milk. Malt tonics are also to be recommended, such as Nutrolactis.

The breasts must be gently massaged two or three times daily to stimulate secretion, and every means taken to improve the mother's general condition. In this case, the chances of success depend entirely on the improvement of the mother.

In order that the baby may not lose weight in the meantime, he should be weighed before and after the nursing in order to ascertain how much short of the correct amount he is getting, and a bottle containing as many ounces of modified milk as are lacking in the supply of breast-milk must be given him. For instance, if a normal child of four months, weighing about 13½ lbs. gets only two ounces from the breast where he should receive five ounces, we then give three ounces of modified milk, which must be suited to his age and digestive capacity. If he has already been accustomed to receiving one bottle a day, he will be given his supplementary feedings of the same formula. If not, he must have a very much weaker formula, as No. 5 or 6, instead of No. 9, the usual formula at that age.

When the milk is poor in quality, but abundant in amount, this is shown by the child's not gaining in weight, although the weighing before and after feeding shows he has had a sufficient quantity. He will be restless, probably constipated, but will not vomit nor show any intestinal symptoms. This is the condition with the least favorable outlook for the continuance of nursing. The mother's diet must be made

*Poor but
abundant
milk.*

more nourishing, with plenty of milk, cereals, meat, poultry, fish, etc., but if conditions do not improve, the child may have to be weaned.

Nursing mothers should not hastily conclude that their milk does not agree, for faulty conditions are very often remedied, and the nursing continued satisfactorily, and to the great benefit of the child. On the other hand, when an infant continues with bad symptoms in spite of all care, he should be put on artificial food alone for a few days, and if this agrees with him, and with the approval of a physician, weaned at once. In this case, it would be a great mistake to carry on a mixed feeding: viz., half breast fed and half bottle fed, for we have already proved that the breast-milk does not agree, and a continuance of it can only lead to further disturbance.

It is sometimes advisable to carry on mixed feeding, i. e., alternate nursings and feedings, from the beginning, in cases where the mother's milk is insufficient, but does not disagree. *Mixed feeding.* It would be wrong to deprive the child entirely of the breast-milk, although it is obviously necessary to supplement it with the bottle.

When one bottle in twenty-four hours is given at the age of two weeks for the purpose of accustoming the child to the bottle, *Formula for bottle in mixed feeding.* No. 2 (see page 64) should be used, but as it is not necessary to make so large an amount, a 10 oz. mixture, composed of half the amounts mentioned, will be sufficient.

It is not desirable to make up less than this, as the quantities cannot be so accurately measured. Of this, $2\frac{1}{2}$ to 3 ounces should be given once a day. If necessary to give more than one bottle, owing to the mother's illness, absence or any other reason, the same

formula must be used; but in any case, if the child makes a satisfactory progress, after a few days the formula should be changed to the next stronger one, thus very gradually increasing first the quantity and then the quality of the daily bottle until at six months the child takes six ounces of Formula No. 11. At this age he should be given two bottles a day, morning and evening, these being carefully regulated according to the child's age, weight, and condition. The food must be increased until at nine months of age he gets two bottles of Formula No. 13 or $13\frac{1}{2}$, about eight ounces to each feeding, alternating with three nursings, at 4 hour intervals. At about the tenth or eleventh month weaning should begin, and breast-feeding ought never to be continued after the twelfth month, unless specially ordered by a physician.

WET-NURSING.

There are so many difficulties in the way of obtaining a good wet-nurse, and her advent in a household is generally followed by such disagreeable consequences that she is usually only resorted to in very extreme cases, i. e., when a baby's life is in danger, and all other methods of feeding have failed.

Too much time should not be lost, however, before procuring a wet-nurse, if the case is urgent, lest even her services may fail to be of any use. It is advisable to secure one in the case of a premature baby under five pounds, when the mother is unable to nurse him, or for any baby under six months of age who is suffering from chronic indigestion, inanition, and continuous loss of weight. For these, wet-nursing is

Cases where service of wet-nurse is indicated.

often the only means of salvation, and is frequently followed by rapid gain in weight, when every other method of feeding has been attended by steady loss.

In selecting a wet-nurse, the importance of a thorough physical examination of both the mother and her child by a physician is of the greatest importance. She must be in good health and free from tuberculosis, syphilis, or any skin disease, and her teeth and hair must be carefully inspected. The size of her breasts are by no means an infallible guide, for large breasts do not always mean an abundant supply of milk, and sometimes smaller breasts will have more milk. The only way of correctly estimating a woman's supply of milk, is by weighing her own baby before and after nursing.

If possible, a woman between the ages of twenty and thirty should be chosen, and one with her first baby. It is not necessary for her own infant to be the same age as the foster child, as the changes in the milk after the first month are very slight. It is not safe to take a woman whose baby is under two or three months old, for if the mother has any syphilitic taint, it will often never be visible in herself, but her child will develop it during the first two or three months of its existence; therefore, until that age is passed, we cannot be sure of the mother's fitness in that respect. *It is the condition of her own baby that is a woman's best recommendation for the position*, and it is never safe to engage one whose baby has died, unless on the special recommendation of a physician who has had both mother and child under his care.

Even when all things seem favorable, it is always an experiment, for what suits one baby may not suit another.

For a premature baby or one under one month old, provided it can take the breast properly, the breast milk should be diluted at first by giving the child from two to four teaspoonfuls of water before nursing.

*Dilution
of milk.*

If the baby is unable to suckle properly, the milk must be pumped, and then diluted with an equal amount of water before offering it to the child. While the milk is being pumped, the woman should be allowed to nurse her own baby, otherwise the milk is liable to dry up.

Sometimes a baby who has been accustomed to the bottle will refuse to nurse, and in this case also pumping has to be resorted to, and the milk given from the bottle. If this is kept up for two or three weeks only, with a baby suffering from acute inanition, it may be sufficient to start him on the right road.

*Cases where
pumping the
milk is
necessary.*

When a wet-nurse is not obtainable, some reputable nursing-woman in the neighborhood may be induced to pump some of her milk once or twice a day. This milk given at two feedings for a short time will often be the means of bringing about a favorable turn in the child's condition.

The best kind of breast pump is one designed by Dr. S. Weiss of Vienna. When this is not obtainable the next best one is the English breast-pump.

*Pump rec-
ommended.*

The failure of wet-nurses is often due to their being overfed, and given a variety of rich, highly seasoned dishes to which they are not accustomed, and also deprived of their usual exercise. This causes an attack of indigestion, with very bad effects on the milk.

*Treatment
of a wet-
nurse.*

A wet-nurse should be given plain, wholesome food,

and besides nourishing the infant, should be allowed to help in caring for it, and also to take it for its daily airing. She must have sufficient air and out-door exercise to ensure her keeping in good health, and the state of her bowels should receive careful attention.

She must be watched both indoors and out to prevent any indiscretions likely to be detrimental to the health of her charge; but it is strongly recommended that, where possible, she be allowed to keep her own infant with her. By allowing this privilege, you are likely to secure a better class of woman than otherwise, and do not run the risk of her milk changing as a result of her worrying over her own baby. This is often the reason why a wet-nurse's milk fails to agree, and only adds to the troubles of the sick infant.

While it may be necessary to feed a wet-nurse's own child by bottle, it is good policy to allow him two or three breast feedings a day, both for the desirable mental effect on the mother, and also because, his sucking being stronger than the sick baby's, it will encourage the flow of milk. Nursing her own baby must, however, be done at the regular nursing hour instead of the foster child's nursing, or if the milk is abundant, immediately after. The two or three hour intervals between nursings must not be interrupted by the nurse suckling her own child, otherwise it will change the character of her milk.

A wet-nurse whose milk is abundant, will be able to nourish her employer's baby as well as her own, to the great benefit of both. It has been conclusively shown that a good wet-nurse can bring up her own baby and one or two other infants on her breasts.

As soon as a sick baby has started to gain on a

Introduction of a bottle. wet-nurse's milk, it is advisable to begin giving him one or two bottles of modified milk a day, so that he may be gradually accustomed to it and the wet-nurse dispensed with as soon as possible. It is also a wise plan to adopt as a precaution in case of the wet-nurse's illness or sudden departure.

WEANING.

Under normal conditions, when the child is thriving, and the mother is in good health, weaning should never begin before the age of nine or ten months, but conditions often arise which make early weaning imperative. These are:

1. Severe illness of the mother, such as typhoid fever, pneumonia, etc.
2. Chronic illness or weakness of the mother.
3. Pregnancy.
4. Stationary weight of a child for two weeks, or steady loss of weight for one week, for no assignable reason, even after the mother's diet and hygiene have been attended to.
5. When the milk disagrees in spite of all measures, and the child suffers from colic, green stools, vomiting, restlessness, and sleeplessness.

It sometimes happens that an infant will not thrive on the mother's milk, although no apparent cause can be found, the milk being up to the standard both in quality and quantity. In this case, the child's symptoms must be the only guide, and weaning should be resorted to without delay.

Often when a child loses weight or fails to gain, it is advisable to begin supplementary feedings at once, but he need not be taken off the breast altogether and mixed feeding can be continued for some time before weaning is accomplished. In the first three conditions mentioned as reasons for weaning, it must of course be done at once, and the child put on a very weak formula of modified milk.

Except for any of the foregoing reasons, weaning should not be attempted in summer, but if the mother's milk is becoming scanty, mixed feeding may be begun. At this season the greatest care should be taken in introducing cow's milk, the formula must be much weaker than the one usually given for the child's age, and if there is any epidemic of summer diarrhoea, or typhoid or contagious diseases, the milk should be pasteurized.

As a general rule, and under normal conditions, nursing should not be continued in any case after the twelfth month, but in the majority of cases, weaning should take place at about the tenth month, as the milk usually becomes scanty and poor in quality by that time. Too sudden weaning is liable to cause indigestion, therefore it should be done gradually in the following manner. At the ninth month one bottle can be substituted for a nursing, or if the child is accustomed to one bottle in the day, a second bottle can be introduced. After an interval of three or four days another may be given, and so on, until after about a month's time the child will be entirely weaned.

If the child has been trained to drink water from the bottle, or has been given one bottle a day from an early age, as has been advised *Drinking from bottle.* in another chapter, there will be no difficulty in getting him to take his food from the bottle, but otherwise, it may require a little coaxing before he will be induced to take it. Sometimes actual starvation for a short time may have to be resorted to, as only hunger will force a baby to drink from the bottle. In this case the breast should be sternly withheld until his opposition to the bottle has been overcome.

If a baby is thriving, and gaining steadily in weight, and the mother is in good health, and particularly if summer intervenes, it is wise *Weaning at 12 months of age.* to postpone weaning until the baby is twelve months old. At this age, it is simpler to begin teaching the baby to drink from a cup, as this will obviate the necessity of weaning him from the bottle later on.

He can be taught by feeding him a small amount at a time from a tiny cup, or by giving him a little from a spoon. Some babies will take *Teaching to drink from a cup.* milk more readily from a cup or spoon than from a bottle. In any case, by the age of fourteen months the use of the bottle should be discontinued, except for the last feeding at night, which may be given from the bottle, as the child would be too much roused by feeding from a cup at that hour.

If a child has been allowed to drink steadily from a bottle until the second or third year, it will be found very much harder to break him of the habit, the continuation of which may interfere with his nutrition, as he will often be unwilling to take any solid food from

a spoon. In obstinate cases, it is often necessary to let him remain hungry until he is willing to drink from a cup.

For the first week or two after weaning a child is is apt to lose weight until he becomes accustomed to cow's milk, after which he will *Loss of weight likely at first.* gain steadily and often more rapidly than before.

Signs of indigestion during the first few days of weaning are usually due to too strong a mixture of cow's milk, and a child who has just been weaned should never be given a formula of the same strength as would be given to a bottle fed child of the same age.

Care in selection of formula. For instance, if a child is weaned at nine months, instead of giving him Formula No. 13½ the usual one at that age, he must begin with No. 8 or No. 9, and gradually increase it until he is taking the right formula for his age and weight. But, being older, he can take a large quantity of the weaker formula, viz., about 8 ounces.

When it is time to wean the infant or when only two nursings are given per day, the times for nursing should be gradually set further and further apart, and the baby nursed only when the breasts are distended and painful.

Care of breasts. In about eight or ten days' time the breasts will be dry.

If weaning has to be done suddenly (owing to the illness of the mother, etc.) the breasts should be tightly compressed by a bandage around the chest. In addition to this, the mother should abstain almost entirely from fluids, and take enough of some saline laxative such as Epsom Salts, Rochelle Salts, Citrate of Magnesia, etc., to produce three or four watery stools a day. If *Sudden weaning.*

in bed, she should have in addition an icebag on the breasts.

Drying up of the breasts can be accomplished in a more agreeable manner by the administration of potassium citrate, 20 to 30 grains, dissolved in water, 3 or 4 times a day, thereby producing a copious flow of urine.

ARTIFICIAL FEEDING.

When mother's milk is not obtainable a substitute must be found in the fresh milk from some animal. Cow's milk has been found the most satisfactory, and is the one in general use, but with various modifications. Fresh milk in some form or other is absolutely necessary. Other foods, alone, may appear to answer the purpose for a short time, but there is danger in their continuance, for scurvy, rickets, or malnutrition will be sure to follow their prolonged use.

As cow's milk is very different in composition from mother's milk, our object must be to modify it, or, in other words, to make it more nearly resemble mother's milk, and furthermore, to adapt it to the child's age and digestive capacity. This can be successfully accomplished in the majority of cases, but we must first realize the essential points of difference, and the best way to deal with them.

In the first place, as cow's milk has much less sugar than mother's milk, a certain amount must be added; this is a necessary article of diet, and takes the place of vegetables in an older child; it is not added in order to sweeten the milk.

Cow's milk contains far more protein or curds, and

More Protein. usually more fat or cream than mother's milk, and moreover, both of these are far more indigestible. We overcome this by the use of diluents, and by adapting the strength of the formula to the child's individual needs.

Cow's milk is slightly acid, but as a rule this never interferes with its digestibility, especially as when first given, it is greatly diluted.

Acidity of cow's milk. Mother's milk is always fresh and sterile.

Cow's milk can never be quite sterile, but by taking great care in the milking and preparation, we can make it safe for use.

Selection of Cow's Milk.

In the selection of cow's milk for artificial feeding, the milk from a mixed herd has been found *Herd milk.* more suitable than that from a single cow, for the reason that the milk from one cow is apt to vary from day to day, whereas the composition of herd milk changes very little.

The milk of Holsteins or ordinary cows is to be recommended for infants in preference to *Holsteins or Jerseys.* that of Jersey or Alderney cows, as the milk of the latter is very much richer and trouble is almost sure to result if due allowance is not made for this when preparing the food; for whereas the Holstein and ordinary cow's milk contains 4 per cent. fat or less, that of the Jersey or Alderney contains about $5\frac{1}{2}$ per cent.

As regards the care of the milk to be used for artificial feeding, the chief essentials to be borne in mind are that the cows must be *Care of the milk.* perfectly healthy, and the milk absolutely fresh and clean. In order to ensure this,

the following rules laid down by the New York Board of Health in regard to the care of the cow-stables, may be of use.

The cow-stable should be located on elevated ground with no stagnant water, hog-pen, or privy within 100 feet. The floors should be constructed of concrete, stone, or some non-absorbent material; they should be properly graded and watertight. The drops should be of the same material and frequently flushed out with water.

Windows should be such as to ensure free ventilation, and the interior of the stable should be painted or whitewashed, and ceiling, walls, and ledges free from decayed animal or vegetable matter, dirt, dust, manure, or cobwebs.

Feeding troughs, platforms or cribs must be well lighted and clean, the bedding used should be clean, dry, and absorbent, and all manure removed daily to at least 200 feet from the barn, and so placed that the cows cannot get at it. The liquid matter should never be allowed to overflow or saturate the ground under or around the cow-barn. No sweeping of stables should be done within at least an hour before milking time, so that the air may be free from dust.

The water supply for the cows should be unpolluted and plentiful, care being taken that there is no stable, pile of manure, or other source of contamination within 200 feet of the source of the water supply, and a running water supply for washing the stables should be located within the building. The cow yard should be properly graded and drained and kept clean, dry, and free from manure.

A separate building should be provided for cows when sick, and also for cows when calving.

*Care of
the cows.*

There should be no live stock, other than cows, allowed where the milk cows are kept. Cows should be examined by a veterinarian and tested by tuberculin, and all tuberculous cows rejected.

The cows must be kept absolutely clean and free from clinging manure or dirt, and the long hairs kept clipped on belly, flanks, udder and tail. The udder and teats must be carefully washed before milking. All feed should be of good quality and all grain and coarse fodder free from dirt and mould. The cows should be allowed to graze freely.

Milk-pails. The milk-pails should have all seams soldered flush, and should be of the small mouthed design, the top opening not exceeding eight inches.

They should be rinsed with cold water immediately after using, and then washed with hot water and a washing solution, and exposed to the sun, or drying racks provided for the purpose.

Milkers. The milkers should be in good physical condition and wear clean clothes and special milking suits; their hands should be carefully washed and wiped just before milking.

Milk from cows within fifteen days before and five days after calving must not be used. The fore milk or first few strains from each teat should be discarded. After milking, the milk must be strained through several layers of clean cheese cloth, poured into bottles, which have been previously boiled, corked, or sealed, cooled in water and then placed in the ice-box in close contact with the ice.

*Care of milk
and ice box.* When milk bottles are not obtainable the milk can be poured into porcelain or glass jugs, but they must be kept covered with several thicknesses of cheese cloth, which are kept in place with an elastic ring. The cheese

cloth must be absolutely clean. The temperature of the milk should never be allowed to rise above 50°F. Care should be taken that the ice box is kept clean and well scoured, and that no decaying vegetable matter is allowed to remain in it.

Milk more than twenty-four hours old in summer, or forty-eight hours in winter, should not be used, unless for a journey, and in that case it should be first sterilized and then kept on ice until wanted.

Inspected milk is used in most families, hotels, etc., and is good for all ordinary purposes.

Milk in cities. Certified milk is nearly double the price, but it is purer, and the quality is guaranteed. It should, therefore, be used for babies and delicate children.

Milk from the Walker-Gordon laboratories is unequaled in quality. These laboratories will make up any formulas or prescriptions for modified milk, when it is not convenient to prepare it at home. For journeys or ocean voyages, they will furnish milk that will keep fresh and sweet for weeks, if their directions are followed.

Thunderstorms. During thunderstorms the milk is sometimes soured, even in the ice box. It is a good rule, therefore, to taste the milk after every thunderstorm, before making up the bottle.

Preparation of Baby's Food.

The following articles are required for the baby's food, and must never be put to any other use.

Articles required for preparing food. 1. A nursery refrigerator, preferably of enameled metal encased in wood, and arranged so that the bottles of milk will be close to the ice.

2. A small table, with zinc top, or covered with oil-cloth, on which the food should be prepared.
3. An 8-oz. glass graduate.



CHAPIN CREAM DIPPER

4. A Chapin dipper for use in top-milk mixtures. (Can be bought for 25 cents.)
 5. A glass jar, with cover, containing a solution of boric acid in which to place the nipples when not in use.
 6. A white pitcher for the hot water in which to warm the baby's bottle, and another in which to mix the food.
 7. A bottle brush and a nipple brush.
 8. A glass funnel for pouring the mixture into the bottles.
 9. A basin containing borax water in which to lay the bottles not in use.
 10. An electric heater, Bunsen burner, or alcohol lamp, and a saucepan for heating water.
 11. A supply of absorbent cotton and boric acid.
 12. The bottles should be graduated up to 8 oz., cylindrical, wide-necked, without angles or corners, and it is best to have a separate one for each feeding, and to fill each one with the proper amount when the daily supply is prepared, as in this way we are sure that the mixture is properly shaken and distributed for the day's feedings.
- Bottles.* A bottle must never be allowed to stand after using, and any milk remaining in it should be thrown away. It must then be scrubbed with a bottle-brush in hot

soap-suds, carefully rinsed in hot water, and stood upside down to drain, or placed in a basin of borax water (or bicarbonate of soda) until needed. The bottles need not be boiled, if cleaned in this way.

13. A wire holder for keeping the bottles in an upright position in the ice-box.



FREEMAN NURSING BOTTLE



WIRE HOLDER FOR BOTTLES

14. A supply of straight black rubber nipples that can be turned inside out, and without holes. It is better to make a hole of the required size with a hot cambric needle. The hole should be small enough to allow the milk to fall in single drops when the bottle is inverted, and not in a stream. The nipple should be tested frequently. Immediately after use, nipples must be thoroughly washed in hot soap-suds and water, inside and out, rinsed, and left in the boric acid solution. It is better not to boil them, except for a minute or so when they are quite new, as they deteriorate very rapidly when boiled.

It is most essential that all the utensils used be kept absolutely sweet and clean, every article *Cleanliness.* should receive attention, and the hands of the mother or nurse must be carefully washed before beginning the preparation of the baby's food.

First dissolve the milk-sugar in a small amount of hot water, then add to it sufficient boiled *Preparation of the day's supply.* water which has been previously cooled to make up the requisite amount. The water to be used for the baby should be freshly boiled every day, and kept in a covered receptacle until needed. Now add the milk and lime water to the milk-sugar solution, mix well, and pour the feedings into each bottle, stopper them with cotton, place for a few minutes in cold water, and then on the ice. When they are to be pasteurized or sterilized this should be done before cooling.

To warm the bottle for feeding, place it in a pitcher filled with hot water, and leave it for a few *To warm bottle.* minutes; test the temperature by dropping a little on the inner part of the wrist. If the temperature is tested by tasting, pour a little in a spoon, but never touch bottle or nipple to the lips. The nipple is slipped over the bottle after warming and the bottle well shaken; it is then ready for use. A small flannel bag with a draw-string slipped over the bottle will prevent its cooling too rapidly during feeding.

How to Select a Formula.

Before selecting a formula the chief factors to be taken into consideration are the age, weight, and condition of the child. In young infants the weight and condition must be our chief guide, the age being of secondary importance. Much depends, also, upon whether it is a nursing infant quite unaccustomed to the bottle, or one already used to one or more bottles a day.

The weight of the infant is a good guide for the amount to be given, because the size of the stomach is usually in direct proportion to the weight. To illustrate these remarks, a child of 6 months weighing only 8 pounds, whatever its condition might be, would receive less than one of the same age weighing 16 pounds. But in the event of the 16 pound baby's being upset, we may have to give him temporarily the same strength of food as the 8 pound baby, although the quantity would be larger. Here the condition determines the strength of the food, we must give what can be digested. For this reason after selecting a formula which will give the proper strength of food, we are often obliged to vary according to individual needs the following details in connection with the feedings:

1. The amount at each feeding.
2. The total amount in the day.
3. The number of feedings in the day.
4. The length of the intervals between feedings.
5. The strength of the food and its composition.

When first put on artificial food, infants often do

Often no gain in weight at first. not gain in weight immediately, and this is natural, for the food must be made weak until we are quite sure that the child is digesting it properly.

When starting on a formula. When called upon to select a formula for an infant about whose constitution, digestive abilities, etc., we know nothing, always begin with a weak mixture, then watch his symptoms very carefully; if these are favorable, gradually increase the amount and strength of the food. For instance, a child, 2 months old, weighing 10½ pounds, should get formula No. 8, but begin with formula No. 5.

How to increase. Never increase both at once, but begin at first with a larger quantity (this increase should not be more than ½ ounce at a feeding), and after 3 or 4 days, if the child does not gain satisfactorily in weight, the food may be strengthened. The maximum amounts for its age should not be exceeded, for this is liable to distend the stomach unnecessarily. (See feeding schedule, page 64.)

Indications for increasing the food. The younger the infant the more rapidly is the step taken from one formula to the next, providing all the child's symptoms warrant the increase.

These indications are:

1. The weight, see page 136, viz., little or no gain.

2. The digestion.

Normal stools and absence of vomiting.

3. Symptoms of hunger.

The child shows these by taking the bottle very eagerly and quickly, by appearing unsatisfied when it

is finished, and by crying before it is time for the next feeding.

All these symptoms being present, it will be advisable to try the next formula. If after three or four days he still does not gain in weight, but sleeps well and is comfortable, it is safe to increase still further the food, but very gradually, as before.

The food should never be increased in quality or quantity at intervals of less than three days, in order to give enough time to observe carefully the effects of the former change.

When a child is doing well on a certain formula, is comfortable, sleeps well, and is gaining normally in weight, *do not on any account change the food* or select a stronger formula, although the one he is taking may be weaker than the one laid down in the schedule for his age and weight.

When an infant is gaining from four to six ounces a week or more (see weight chart on page 183) any increase is inadvisable, even if his appetite seems to demand it. Instead, give more water between feedings.

A child will sometimes be restless and show signs of thirst in very warm weather, or as a result of overheated rooms or too much clothing. This may be mistaken for hunger, and the child overfed in consequence, whereas the proper treatment under these circumstances is to give a drink of warm water between feedings. The amount may vary, but a safe guide is to give not more than half the amount of the usual feeding, using water previously boiled and cooled to about 100°F. A pinch of sugar may be added. This

*Thirst
from heat.*

should not be given less than one hour before or after the feeding.

Some infants are slightly upset by an increase in food, and in these cases it is safer to return to the older formula for a while; then after recovery, to make the increase more gradual than before; e. g. give $\frac{1}{2}$ an ounce more in every alternate bottle at first.

When the increase is followed by indigestion.

The food should be promptly reduced, especially in strength, when the child shows any symptoms of indigestion (see chapter on Indigestion), or in any case of illness, whether trifling or severe. When the symptoms are severe, food should be entirely withheld, and only water given until the arrival of the physician.

Indications for reducing food.

No hard and fast rules can ever be laid down covering all feeding cases. The age, weight, condition, and peculiarities of each child have to be taken into account and separately considered.

Food for Healthy Infants.

In the preparation of formulas for the use of infants, it must be taken into consideration that while a child can usually digest mother's milk, he has to be *educated* to digest cow's milk. As it is impossible to tell beforehand what amount of fat or protein a particular infant will be able to digest, it is safer to begin with low percentages of these ingredients, and gradually increase them until the child is taking an amount suitable to his age and weight. In this way we shall avoid serious disturbances of digestion.

There are five grades of milk which I shall consider, differing only in the percentage of fat they contain.

- Different grades of milk.*
1. Skimmed milk, containing about $1\frac{1}{2}$ per cent. fat; page 69.
 2. Milk from Holstein cows, containing about $3\frac{1}{4}$ per cent. fat.
 3. Milk from a mixed herd, containing about 4 per cent. fat.
 4. Milk from Jersey or Alderney cows, containing about $5\frac{1}{2}$ per cent. fat.
 5. "Top-Milk," specially prepared, containing about 7 per cent. fat. For directions see page 67.

The milk supply in most cities in this country is obtained from mixed herds, and contains about 4 per cent. fat when supplied by a reliable firm. Jersey and other cow's milk containing about $5\frac{1}{2}$ per cent. fat is only obtainable from private farms.

The preparation of top-milk mixtures from the last four varieties is explained elsewhere.

Some authors recommend starting in the first few weeks of life with top-milk, or the addition of cream to the milk in order to make the mixture richer in fat. As the infant's stomach is accommodating itself to foreign food, and a disturbance of digestion at this early period of life is a very serious matter, I have found it safer to begin on a whole milk mixture of 4 per cent. fat in proportions that we are reasonably sure the child will digest. It is a simple matter to add more fat later if we are sure that it can be safely borne. This would be done when a slow gain in weight, and constipation follow the whole milk feeding, for these symptoms are easily corrected, while the same cannot be said of an upset caused by a mixture too rich in fat.

We shall then begin with the whole milk formulas, and it is understood that whole milk (from which no cream has been taken) from a mixed herd of cows is to be used, and the

bottle thoroughly shaken before pouring out the number of ounces required. This milk will contain about 4 per cent. fat.

If, however, only the milk from Jersey or Alderney cows is procurable, it will contain about $5\frac{1}{2}$ per cent. fat, and must be treated in the following manner. The milk must remain undisturbed in the quart bottle in the ice-box for four hours. At the end of that time the upper 3 oz. should be carefully removed with a Chapin dipper. The remaining contents of the bottle must be thoroughly shaken, and from this the milk is poured out for use in the formulas.

The formulas call for cane-sugar, i.e., the ordinary white granulated sugar. It is far cheaper than milk sugar which is impure, unless an exorbitant price is paid for it. One heaping Chapin dipper contains exactly one ounce of cane-sugar.

For the sake of convenience, the formulas are given in 20 oz. mixtures. If 30 oz. are required, it will be easy to add half the amount again to those already given, and if 40 oz. are needed, the amounts given in the formulas are doubled. On the other hand if only 10 oz. are required, we take half the amount of everything in the formula. Formulas as given below are referred to as "2 in 20" or "5 in 20," etc., the 2 or the 5 being the number of ounces of milk in a total mixture of 20 oz. In this way the mother knows not only the number of the formula, but also the proportion of the ingredients. It must be borne in mind that these formulas are only intended for normal, healthy infants.

FEEDING SCHEDULES

FORMULA No.	1	2	3	4	5	6	7	8	9	10	11	12	13	18	13 1/4	14	14 1/4	15
Whole Milk, ounces	0	2	3	4	5	6	7	8	8 1/2	9	10	11	12	13	13 1/4	14	14 1/4	15
Cane Sugar, ounces	1 1/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	1/2	1/2	1/2	1/2	1/2
Lime Water, ounces	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Water, boiled and cooled, ounces	6	17	16	15	14	13	12	11	10 1/2	10	9	8	7	6	5 1/2	6	5 1/2	5
Total Quantity, ozs.	6	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
AGZ	birth day	1	4	10	2	4	6	2	3	4	5	6	7	8	9	10	11	12
Weight in lbs.	7 1/4	7 1/4	6 3/4	7 1/4	7 1/4	8 1/4	9 1/4	10 1/2	12	13 1/4	14 1/4	15 1/4	16 1/2	17 1/4	18	18 3/4	19 1/4	20
Amount at each feeding, ounces	1 1/2-1 1/2	1 to 1 1/2	1 1/2 to 2	1 1/2 to 2 1/2	2 to 2 1/2	2 1/2 to 3 1/2	3 to 4	3 1/2 to 5	4 to 5	4 1/2 to 6	5 to 6	5 1/2 to 7	6 to 7 1/2	7 to 8	7 1/2 to 9	8 to 9	8 to 10	8 to 10
Total amount for day in ounces	6	10-15	15-20	20-25	20-25	20-28	24-32	24-35	28-35	27-36	30-36	33-42	33-45	38-40	35-45	37 1/2 to 45	40-45	40-50
Intervals between feedings in hours	4	2	2	2	2	2 1/2	2 1/2	3	3	3	3	3	3	4	4	4	4	4
Number of feedings in 24 hours	6	10	10	10	10	8	8	7	7	6	6	6	6	5	5	5	5	5
Hours for feeding		a.m. 6, 8, 10	a.m. 6, 8, 10	a.m. 6, 8, 10	a.m. 6, 8, 10	a.m. 6, 8, 10	a.m. 6, 8, 10	a.m. 6, 8, 10	a.m. 6, 8, 10	a.m. 6, 9	a.m. 6, 9	a.m. 6, 9	a.m. 6, 9	a.m. 6, 9	a.m. 6, 10	a.m. 6, 10	a.m. 6, 10	a.m. 6, 10

Example of feeding according to the above schedule.

No. of Formula.. Formula No. 10 should be given to

Agea child 5 months old

Weightweighing about 14½ pounds.

Amount at each feeding {Between 5 and 6 ounces should be given at a feeding, and

Total amount for the day {Between 30 and 36 ounces in the 24 hours.

Intervals between feedings {The intervals should be 3 hours.

Number of feedings in the 24 hours {There should be 6 feedings in the 24 hours.

Hours for feeding {These are 6, 9, A. M. and 12, 3, 6 and 10 P. M.

Barley water. Barley water may be substituted for the plain water in the formulas when the infant is three or four months old. The nutritive value of barley water is very small, but in many cases when the protein is not well digested, it helps to break up the curds in the stomach, and thus assists in better assimilation of the food.

Night feeding. In the schedule under the headings for intervals of 2½ and 3 hours, I have recommended the last feeding to be given at 10 P. M. instead of 9 P. M., which would be the correct hour according to the intervals. I have made the change in this case, because it has been my experience, that when the last feeding is given a little later at this age, babies are more apt to sleep through the night without waking, and this habit should be en-

couraged and the night feeding discontinued as soon as possible.

It must be remembered that the lesser amounts given are for small-sized and delicate children, and the larger amounts for robust, large-sized children. The larger quantities should never be exceeded, except in rare cases.

Larger and smaller amounts given in schedule.

A higher formula than the one suitable to the child's age (see page 64) is only indicated when a baby is taking the maximum amount of such a formula and is not gaining, and otherwise shows signs of insufficient nourishment, (see heading *scanty milk* on page 39.) Of course he must not vomit or show any symptoms of indigestion.

Higher formula.

Nearly all physicians recommend the use of lime-water in the formulas, in order to overcome the slight acidity of cow's milk. In this respect I have adhered to custom, but it appears more logical to me to overcome this acidity by the use of bicarbonate of soda (2 grains to every ounce of milk) for the reason that cow's milk already contains three times more calcium (lime) than mother's milk, but is deficient in sodium.

Lime-water or bicarbonate of soda.

A stock mixture of a solution of sodium bicarbonate can be kept on hand, and is made up as follows. To one quart of boiled water add two and one-half ounces of bicarbonate of soda and shake. Of this add two teaspoonfuls to every 5 ounces of milk used in the mixture.

I have often ordered milk mixtures which contained neither lime-water nor bicarbonate of soda, and the results have been just as good.

Let the bottle of milk stand undisturbed for four hours in the ice-box. If it is herd milk containing 4 per cent. fat, remove 16 oz. *Top-milk.* with a Chapin dipper; if Jersey or Alderney milk is used, remove 24 oz., if Holstein milk then only 12 oz. The milk taken out in this way will be so-called top-milk and will contain 7 per cent. fat. Shake this and from it take the number of ounces required and proceed to make up the formulas as before. (See schedule.) When using top-milk, a stronger mixture than formula No. 9 should not be given. This formula calls for 9 ounces of top-milk in 20 ounces, and consequently contains a little more than 3 per cent. fat. Very few infants can stand a higher percentage of fat than this, so after using No. 9 formula with top-milk it is wiser to make the next step a No. 10 formula with whole milk.

An intermediate stage between whole milk (4 per cent. fat) and top-milk (7 per cent. fat) is the milk from Jersey, Alderney, or Guernsey cows containing about 5½ per cent. fat. After shaking up the bottle, use it according to the directions given for milk from a mixed herd, but do not give a stronger mixture than formula No. 12, as this would contain slightly over 3 per cent. fat. After No. 12 formula with Jersey milk give No. 13 formula with milk from a mixed herd.

Personally I am not an advocate of top-milk mixtures, except in very rare and special cases. *Remarks.* I have seen more harm than good result from its use, as for most infants the fat or cream in cow's milk is the ingredient most difficult of digestion. Children upset as a result of too much cream do not recover for a long time, and even after recovery require very careful feeding.

Top-milk or the addition of cream to an infant's

food, for the purpose of increasing the percentage of fat in the mixture, originated a few years ago from the idea of modifying cow's milk so as to make its composition the same as mother's milk.

To explain this, I shall first give a table showing the average composition of mother's milk and cow's milk.

	Fat.	Sugar.	Protein.
Mother's milk.....	4%	7 %	1.50%
Cow's milk.....	4%	4.50%	3.50%

As can be seen, cow's milk contains more than double the amount of protein and a little more than half the quantity of sugar than mother's milk.

To make the cow's milk more like mother's milk, it was greatly diluted, and then sugar and cream were added. Chemically the two milks were now almost identical, but in digestibility they were far apart. Without any experience to warrant it, this modification of top milk was at once advocated and tried on infants, generally with disastrous results. Many physicians have now discarded it.

The old notion prevailed that all curds in the stools were composed of undigested protein, but we now know that curds are often composed of fat. The protein of cow's milk is not as indigestible as it was thought to be, and in most cases of indigestion in infants we can put the blame on the cream.

Do we not all know of children suffering from indigestion who have been benefitted by skimmed milk or buttermilk? In both of these the percentage of fat is very low, but the protein is the same in amount as in unaltered milk. To give cream under these circumstances would be to court disaster.

Although it is the cream or fat that is the ingredient most difficult of digestion, still it is very essential for an infant to have some form of fat, for it produces heat and energy, prevents waste of the tissues of the body, is a natural laxative and assists in the growth of bone and nerve tissues. Lack of fat produces emaciation, constipation, rickets, etc.

Top-milk would be occasionally indicated in the case where the healthy infant is getting the formula suitable for his age and weight, but is gaining very little or not at all, is constipated, but has no other symptoms. I am distinctly opposed to top-milk, but if it is given, the infant must be watched very carefully. If the top-milk disagrees, we must go back to whole milk or even to skimmed milk and give olive oil in small quantities, to take the place of cream, for a short time, until the symptoms improve.

As a result of recent experiments it has been found that a pure vegetable oil, like olive oil, can not only take the place of cream, but that it is very digestible and can be given to infants who could not previously tolerate the smallest percentage of cream. They do not gain in weight on it, but it prevents them losing.

Olive oil should be given in small quantities, beginning with half a teaspoonful three times a day, just after giving the bottle. It may be increased gradually, to a maximum of six teaspoonfuls a day, and should always be given in divided doses, after each feeding.

Skimmed milk is useful in certain cases of indigestion and where infants have been upset from mixtures too rich in cream, and should be given in every case of vomiting until the cause is known. It is taken from whole

milk by allowing the bottle to stand four hours in the ice-box, and then carefully removing the upper 4 ounces with a Chapin dipper. The remainder is shaken up and used in making the required formula. If the milk is from Jersey cows, remove the upper 6 ounces and use the rest, as before.

General Directions for Feeding.

For the first two or three months the baby should lie in a semi-reclining position in the mother's or nurse's arms for all feedings in the daytime. At night, for the sake of warmth, the child can be placed on its side in bed, and the bottle held in its mouth.

An infant requires attention during the entire time of feeding, and the bottle must never be left lying on the pillow to be sucked at will, as the child may draw in air owing to the bottle not being at the proper angle; or the child may alternately suck and fall asleep, and will be too long over the bottle. A sleepy infant may be kept awake by gentle tapping or shaking, but if twenty minutes have elapsed, and the bottle is still unfinished, it should be removed, the milk thrown away and no more offered until the next feeding-time.

The baby's diaper should be changed before giving the bottle, so that immediately after the feeding he may be placed in the crib, and not disturbed in any way. Playing with or exciting a baby at this time is often the cause of vomiting or indigestion. If the child is perfectly healthy and comfortable, and has been properly trained, he will be quite content to lie quiet in his

crib after the feeding even if he does not sleep. Should he cry, it is well to examine his diaper, or to pick him up gently, lay him against the shoulder, and pat him gently on the back for a minute or so, as a little wind in the stomach may be the cause, and if he succeeds in getting rid of it, he will be perfectly quiet when replaced in his crib.

A baby must be wakened through the day for his feedings, and he should be fed at regular intervals, and at the exact time by the clock, the same hours every day being rigidly adhered to. The child will thus be taught regular habits, and in a short time will learn to wake of his own accord for his bottle.

After nine or ten o'clock at night, however, a baby should be allowed to sleep as long as he will and the night feeding given when he wakes of his own accord. This feeding should be discontinued as soon as possible after birth, and never given, in any case, after the child is four or five months old, when he should sleep from 10 P. M. to 6 A. M. without waking.

Twenty minutes should be the regular time allowed for each feeding, and if the hole in the nipple is properly regulated it will take a healthy baby 15 to 20 minutes to consume the amount. If he takes it in a shorter time he is likely to regurgitate or suffer from indigestion. If he drinks too eagerly, the bottle should be taken out of his mouth repeatedly for a few seconds at a time, but care must be exercised in doing this, as a sudden pull on the bottle might injure his tongue, which is tightly curled around the nipple.

The intervals which are counted from the beginning

Intervals. of one feeding to the beginning of the next, should be strictly adhered to, except during severe illness or on the advice of a physician. These intervals should never be shortened, even in the case of a nursing baby, and still less so with a bottle-fed baby, for if a fresh feeding is added to a variable amount of partially digested food in the stomach, it is sure to result in colic, indigestion, vomiting, etc.

On the other hand, bottle-fed infants often do better, even in the earliest weeks of life, when the intervals between feedings are lengthened to three hours instead of two. This is due to the fact that it takes cow's milk nearly three hours to digest, as has been proved by various experiments. The older the child grows, the more milk is consumed, and the longer the process of digestion will take, consequently we lengthen the periods of time between feedings. They should not be less than two hours and not more than four hours, depending on the age and condition of the child. The intervals should always be lengthened when the child suffers from loss of appetite, does not finish his bottle, vomits or regurgitates after feeding, or during any attack of indigestion or illness.

Treatment of healthy babies. It has been stated that babies should be left undisturbed in their cribs after feeding, but this does not mean that a child is to be left lying in its crib all day. In fact, it is essential to a baby's development that it be carried about in the arms from time to time, as this will take the place of exercise for a baby not yet able to walk. The times for doing so, however, should be before feeding, not after. If it is seen that a child is crying simply as a result of injudicious pet-

ting, and when it is not uncomfortable in any way or suffering from indigestion, he should not be indulged, but rather allowed to have his cry out, as this will do him no harm, and he will soon get back into regular habits. Of course, exceptions must be made in the case of very sick babies, as these have a right to be "mothered," and ought not to be allowed to cry very long. They should be indulged, however, only during the time of their illness, after which they must be gradually trained back into their former habits.

ADDITIONAL FOOD DURING THE FIRST YEAR.

(For Recipes, see page 172.)

When the child is three or four months old barley water may be added to the milk mixture in place of the water, as it often assists in the digestion of the protein of cow's milk.

Gruels, in small quantities, beginning with one ounce, may be added to the 20 oz. mixture in place of an equal amount of water after the seventh or eighth month, and increased until, at twelve months of age, five ounces of gruel are given. The gruel should be cooked separately, and added to the milk, then allowed to cool a little, after which the other ingredients are added.

This must be diluted with an equal amount of cold water. It should be given once a day, just before midday or first afternoon feeding.

Beef juice. Begin with two teaspoonfuls and gradually increase to one ounce or eight teaspoonfuls in the course of a month or two. Beef juice should always be given after nine months of age, but delicate children

will be benefitted by giving it in small quantities as early as six months, beginning with one teaspoonful. At one year, two or three tablespoonfuls may be given, but never more.

Half the white of a coddled egg may be given at six months once a day just before the mid-day bottle and increased to the whole white in a few weeks. This is especially useful when the protein of cow's milk is not properly digested. Beef juice and the white of egg must not be given on the same day, but should be served on alternate days.

The juice of a fresh sweet orange may be given at six months of age, beginning with two teaspoonfuls one hour before the second feeding of the day, and increasing the amount to one or two ounces by the end of the year. It must always be strained. Some children cannot take orange juice, in that case the juice of boiled prunes or strained apple sauce may be substituted.

At nine or ten months, a healthy, normal baby can be allowed to munch a zwieback or Huntley and Palmer's breakfast biscuit, if he has the normal number of teeth.

In addition, he may be given, three or four times a week, the outer mealy part of a boiled potato, finely mashed, taken from just under the skin, not from the center where it is hard. Begin with two teaspoonfuls and gradually increase to one tablespoonful by the end of the year. It should be flavored with a little dish gravy or beef-juice and a pinch of salt.

No further additions to the baby's diet should be allowed until after the first year.

PEPTONIZED MILK.

Peptonized milk is milk prepared by a special process by which the protein or curds are partially or wholly predigested. It is therefore prescribed for acute or chronic cases of indigestion in children of all ages, when the digestive organs are so upset or weakened as not to be able to take the weakest milk formulas without aggravating the symptoms.

The peptonizing powder is sold in tubes or tablets each containing five grains of the digestive agent. Fairchild's peptonizing tubes are the best known. It is more convenient to peptonize the entire day's supply at once, and the milk can be diluted before peptonizing, when this is necessary; plain milk will require one tube of powder to a pint, and when the milk is modified, the proportions of milk and powder must be according to this rule.

Partially peptonized milk can be prepared in two ways; the better way is as follows:

Partial peptonization. Heat the milk in a milk bottle by placing it in a jug filled with hot water, just bearable to the touch, or about 110°F. Let it stand until the milk is warm, test it by taking out a teaspoonful and pouring a few drops on the inner side of the wrist. When warm, pour out a little in a clean cup, add the powder from the tube, stir well, pour it back into the milk bottle, and shake it. See that the water in the jug is warm, and let the milk bottle stand in it ten minutes or longer, according to the length of time it is desired to peptonize. Then pour the milk into a clean saucepan and bring it rapidly to a boil. Pour it out into another clean bottle and cool it rapidly in cold water to which pieces

of ice have been added. When cold, place the bottle on the ice.

The other way of partially peptonizing milk is practically the same, except that the milk is peptonized for ten minutes only without boiling it afterwards, then cooled rapidly and placed on the ice.

Milk partially peptonized by the first method for not more than 10 or 15 minutes should never taste bitter and will not be refused by children. It is seldom necessary to peptonize for more than 30 minutes.

In the second method, the process of peptonizing has been stopped for the time being only, by placing the bottle on the ice. The peptonizing process will begin again as soon as the milk is warmed, and consequently, when the baby's bottle is prepared it should be warmed rapidly and the bottle given without delay, as the process of peptonizing goes on in the milk while the baby is taking the bottle. This method is advised only when there is plenty of ice, and when the baby is under six months old, as older children often refuse the milk, because it gets bitter before the bottle can be emptied. The first method is preferable, as it is simpler.

Completely peptonized milk is prepared in the same way by allowing the powder to act for 2 hours; the milk is then boiled and cooled in the same manner. Care should be taken to see that the milk is kept warm by repeatedly testing the temperature of the water in the pitcher or jug. It is very bitter and is seldom used.

Peptonized milk should be used in the same way as whole milk when making up a formula.

*Method
of using.*

Completely peptonized milk should be used for a few days only, never more than

two weeks; but partially peptonized milk can be used for about two months.

When a child's digestion has improved with completely peptonized milk, given for a few days, the milk should be peptonized less every day by about fifteen minutes, until we are giving the child milk that has been peptonized for ten minutes only. It is well to keep up this partially peptonized milk until the child's symptoms show decided improvement. We can then peptonize the one point of milk with $\frac{3}{4}$ of a tube for ten minutes for a few days, then with $\frac{1}{2}$ of a tube for ten minutes for a few days, then with $\frac{1}{2}$ of a tube for five minutes for a few days, and finally return to the regular milk mixture made from whole milk.

If less than one pint of peptonized milk is required, use a proportionate amount of the tube. For $\frac{1}{2}$ pint of milk use $\frac{1}{2}$ of a tube only. In the same way use more than one tube when more than one pint of milk is to be peptonized.

Skimmed milk may be peptonized in the same way as above.

Peptogenic milk powder (Fairchild's) is sometimes used for cases where only partial peptonization is required. Full directions come with the bottle, but one capful of the powder is sufficient for a pint of the milk mixture, whatever the strength of it may be. No sugar is to be added. The proportion of milk should be according to the ordinary formula.

Experiments are being carried out at present, which appear to show that "fat-free" milk can be used in many cases of severe gastric and intestinal disturbances instead of peptonized milk. Infants do not gain in weight

*Peptogenic
milk powder.*

*Fat free
milk.*

on it, but their symptoms greatly improve, after which cream in small quantities can be added.

"Fat-Free" milk can be obtained from the Walker-Gordon laboratories.

STERILIZATION AND PASTEURIZATION OF MILK.

These are the two methods in vogue for heating milk in order to destroy the germs in it. All milk contains germs to a certain extent, no matter how carefully it is handled. Most of the germs are harmless, but the milk may contain those of typhoid fever, scarlet fever, diphtheria, tuberculosis, cholera and diarrhoea, etc.

Sterilization consists in boiling milk for at least one hour in a double boiler. It should then be *Sterilization.* rapidly cooled by placing the saucepan in cold water, which is frequently changed, or to which ice has been added, so that the milk is cold in about twenty minutes. Pour into bottles which have just been boiled, and cork them with sterile cotton wool. They should then be placed on the ice in the ice-box.

This milk will keep on ice for two weeks, and can therefore be used for long journeys.

Stale or contaminated milk should never be used as food, and sterilization will not make it fit for consumption.

Sterilized milk is not as palatable nor as digestible as unheated milk, and is often liable to cause constipation, and even scurvy if continued as the sole food for several months.

Sterilization is indicated:

- Indications for sterilization.*
1. During outbreaks of diarrhoea, scarlet fever, typhoid fever, etc.
 2. When the milk has to be kept more than a few hours without ice, or when it has to be kept for more than twenty-four hours, as on long journeys.



FREEMAN PASTEURIZER

Pasteurization. This consists in heating milk at a temperature of 155°F. to 160°F. for thirty minutes. There are several apparatus for this purpose on the market, the simplest being the Freeman pasteurizer. It is made in two metals, tin and copper, which cost \$4.00 and \$8.00 respectively. It can be obtained of J. T. Dougherty, 409 West 59th Street, New York City, and from most dealers in surgical instruments. Directions for use come in the box.

Pasteurization is indicated:

1. When one is not sure how the milk has been

Indications for pasteurization. handled, nor whether the cows are in a healthy condition.
 2. In the warm months of the year, whenever the milk cannot be obtained fresh, as in towns and cities.

Pasteurized milk should not be kept for more than twenty-four hours.

When a pasteurizer is not obtainable, the milk can be poured into bottles that have just been boiled, then cork them with sterile cotton wool and place them in a tin pail. Fill the pail with boiling water, cover it up and set aside for forty minutes. Then cool rapidly and place on the ice.

Pasteurized milk can be used for several months without harmful effects, but it is preferable to use fresh milk whenever it is obtainable.

DIET FROM 1 YEAR TO 15 MONTHS.

6.30 or 7 A.M. { Warm milk, 6 to 8 oz., diluted with 2 to 3 oz. of barley or oatmeal gruel, given from a cup, and one zwieback.

9 A.M. Orange or prune juice, 1 to 2 oz., given with a teaspoon.

10 A.M. The same as at 6.30 A. M.

2 P.M. a. The white of one coddled egg, later the whole egg, or

b. two or three tablespoonfuls of beef-juice, or

c. mutton or chicken broth, 4 to 6 ounces.

A little stale bread can be broken up in it. Alternate these on different days.

In addition 1 to 2 tablespoonfuls of boiled potato, see page 74.

Warm milk diluted with $\frac{1}{4}$ water, 4 to 6 oz.

6 P.M. The same as at 6.30 and 10 A. M.

10 P.M. 7 to 10 oz. of warm milk diluted with $\frac{1}{4}$ water, and given from the bottle.

Most children should take their meals from a cup or spoon at the age of thirteen or fourteen months, except the 10 P. M. feeding, which should be given from the bottle so as to disturb the child's sleep as little as possible.

DIET FROM 15 TO 18 MONTHS OF AGE.

Note: Many children even at this age cannot take undiluted milk, in that case it should be diluted $\frac{1}{4}$ with water,

6.30 or 7 A.M. Warm milk, 8 to 10 oz., and one zwieback.

9 A.M. Orange juice, or prune juice, 2 to 3 oz.

10 A.M. Oatmeal, hominy, wheaten grits, or cornmeal cooked for at least 3 hours and strained, or cream of wheat cooked for half an hour, from one to three tablespoonfuls with an equal amount of thin cream and a pinch of salt, but no sugar.

Also a dry piece of toast, or a zwieback or one Huntley and Palmer's breakfast biscuit or bran cracker.

Also a cupful of warm milk.

2 P.M. a. Beef, chicken or mutton broth, 4 to 6 oz., with well boiled rice or bread crumbs, or

b. One soft boiled egg and one or two oz. of beef juice, or

c. Rare scraped beef $\frac{1}{2}$ to 1 tablespoon mixed with beef juice or beef tea or beef broth.

Also 1 to 2 tablespoonfuls of boiled potato, see page 74.

And in addition, 2 zwieback or 2 H. & P. breakfast biscuits, or a piece of cold crisp toast with a little butter spread on it. A drink of water, but no milk.

Cream of wheat, farina, wheatena or arrowroot cooked at least half an hour, about 2 tablespoonfuls with milk and a pinch of salt, but no sugar.

Also warm milk 8 to 9 oz.

10 P.M. Warm milk 8 to 10 oz. from the bottle.

DIET FROM 18 MONTHS TO 2 YEARS OF AGE.

6.30 or 7 A.M. { Warm milk, 10 to 12 oz., and a zwieback.

9 A.M. Orange or prune juice, 2 to 3 oz.

10 A.M. One of the cereals, well cooked but not strained, 2 or 3 tablespoonfuls, with a little cream or milk. A piece of crisp toast and butter, or zwieback, or Huntley and Palmer's biscuits, and a cup of warm milk; or

One soft boiled egg or poached egg, with toast, or zwieback and butter and a cup of milk.

2 P.M. a. Beef, mutton or chicken broth, or beef-tea with a little rice, or bread crumbs, and a little rare beef scraped or minced; or

b. A lamb chop, or some chicken from the breast, cut very fine; or

c. A piece of tender, rare beefsteak or roast beef finely minced.

Two zwiebacks, or stale bread with any of the above.

Also 1 to 3 tablespoonfuls of finely mashed, baked white potato with a little dish gravy may be given.

Also 2 tablespoonfuls of any of the following deserts:

a. Stewed prunes well cooked and strained; or

b. A baked apple or apple sauce; or

c. Plain rice pudding or cornstarch, or custard pudding. A drink of water, but no milk.

6 P.M. a. Cream of wheat, farina or arrowroot, with a little cream and a pinch of salt; or

b. Milk toast; or

c. Zwieback soaked in warm milk.

Also a cup of milk with any of the above.

10 P.M. A drink of milk for those children who do not sleep from 6 P. M. to 6 A. M.

DIET FROM 2 TO 3 YEARS OF AGE.

730 A.M. Cereals, as before, and an egg, boiled or poached. One glass of milk and stale bread, or zwieback, or H. & P. biscuits.

10 A.M. One cup of milk and a cracker.

130 or
2 P.M. A cupful of broth or 2 oz. of beef juice and one of the following: beefsteak, chop, roast beef, lamb, or chicken, with dish gravy, and a baked white mashed potato, or well cooked rice, or spaghetti and one of the following vegetables: green peas, string beans, cauliflower,

boiled tomatoes, carrots, spinach, asparagus tips, all cooked soft and mashed, and begun in very small quantities. Also one of the following desserts: baked apple, apple sauce, stewed prunes, rice pudding, junket, bread pudding, custard, cornstarch. Water to drink, no milk.

6 P.M. Cereals and milk with crackers or stale bread, or milk toast, or bread and milk.

A drink of water should be offered two or three times between meals, but a large amount at meal time must not be given, about half a glassful is sufficient.

DIET-LIST FROM THE 4th TO THE 10th YEAR.

A choice of one of the cereals, cooked for three hours, and served with milk and a pinch of salt, but very little cream, and no sugar.

Breakfast

7:30 or

8 A.M.

Stale bread and butter or zwieback, graham crackers, oatmeal crackers, or Huntley and Palmer's breakfast biscuits, or stale rolls.

A soft-boiled, poached or coddled egg.

A little apple sauce, or a baked apple, or prune pulp.

A glass of warm milk.

Chicken, beef, or mutton broth, with rice or barley.

Dinner

12:30 or

1 P.M.

After the age of seven, vegetable puree soups may be given.

A choice of white fish, flounders, shad or bass, or roast lamb, beef or chicken or lamb chop or beefsteak.

With the meals, only the dish gravy should be allowed, and baked or boiled white potatoes mashed up and mixed with it.

Of the vegetables, a choice can be made of spinach, green peas, asparagus tips, cauliflower, carrots, stewed celery, beets, string beans, squash, lima beans, and after six years of age, turnips, sweet potatoes, and boiled onions.

For dessert, a choice of custard, junket, rice pudding without raisins, any plain milk pudding, or apple sauce, baked apple, or stewed prunes, peaches or pears, and occasionally, a little ice-cream.

Only water should be given to drink at this meal.

Milk toast and milk, or cereal and milk, and stale bread or zwieback or Huntley and Palmer's breakfast biscuits. Sometimes cocoa can replace the glass of milk, but it must not be made rich.

Supper
6 P. M.

After the third year three meals a day are sufficient, except that a glass of milk and a cracker may still be given between breakfast and lunch if a child is hungry and the practice does not lessen his appetite for the midday meal, which should be the principal one of the day.

Three
meals
a day.

The meals ought to be at regular hours, and any eating between them, with the above exception, must be strictly forbidden. Water, however, can be given in abundance between meals whenever the child is thirsty, but not more than a glassful should be taken at meal time.

Regular
hours for
meals.

Milk is still a very important item in a child's diet, and a healthy child will consume about one and a half pints a day, including what is served with cereals, in puddings, etc. It

Milk.

often happens that the milk a child drinks is better digested if it is still a little diluted, about $\frac{1}{4}$ part water. Too much rich milk or cream is apt to produce loss of appetite and foul breath.

Sour fruits of any kind should not be given at the same meal with milk, as they will cause it to curdle.

Fresh fruit juice early in the morning has a very beneficial effect on the bowels; and small quantities of peeled pears, peaches, and apples or a few fresh berries can be given at meal-time, but care must be exercised, especially in hot weather.

Teach children to chew their food very thoroughly, and to eat slowly. As they are invariably
Importance of careless in this respect, it is very important
mastication that all their meats should be cut in very
and thorough small pieces, and the vegetables cooked
cooking. until very soft, and mashed in addition.

Cereals, also, should be cooked for a very much longer time than stated in the directions on the package. Although they are a useful part of a child's diet, he must not be allowed to eat them in excess, and the ready cooked cereals should not be given.

Loss of appetite and indigestion in children over one year of age is often the result of over-eating, eating between meals, or eating
Loss of eating, eating between meals, or eating
appetite. forbidden articles of food, such as cake or candy.

When a child refuses the food set before him at the regular mealtime, the mother should satisfy herself that it is of good quality, and properly cooked and served. This being the case, the child must not be urged to eat, nor any more tempting articles of food set before him. If he is not hungry, he will be much better off without food, and should not have anything offered him until the time for the next meal arrives.

In summer time especially, less food, particularly meat, is required by a child, but he needs more water between meals.

Supper should always be a light meal, as otherwise a child's sleep may be disturbed.

Children often develop a habit of eating too much of some one article of food, to the exclusion of others. In some it may be meat, in some cereals, in others vegetables, and a few will take so much milk that they have no appetite for anything else. While all these foods are excellent in their way, a child will thrive much better on a mixed diet. In order to teach him to eat what is good for him, it may be advisable to withhold the desired food altogether for a few days, and, if necessary, to starve him a little, and begin feeding by serving him with whatever food he usually refuses.

FORBIDDEN ARTICLES OF FOOD.

All *fried* food of any kind.

Fish.—All fish not mentioned in diet-list, and all salt fish.

Meats.—Pork, ham, bacon, veal, kidney, liver, rich stews, duck, or goose and all prepared meats, such as sausage or salted meat.

Vegetables.—Cabbage, corn, fried egg-plant or onions, or raw vegetables, or salads of any description.

Bread.—Fresh bread, hot bread, muffins, hot biscuits, doughnuts, griddle or buckwheat cakes, or fresh sweet cakes of any kind.

Desserts.—Nuts, pastry, candy, rich puddings or preserves, dried fruits, or pies.

Fruits.—Bananas, pineapple, the pulp of grapefruit or oranges, cherries, grapes, unless the skins and seeds are removed, berries, unless very fresh, and then only a limited quantity.

Beverages.—Tea, coffee, beer, wine, or cider, should be absolutely forbidden until a child is fifteen or sixteen years of age, and lemonade or soda water only very sparingly allowed.

STOOLS.

During the first week a healthy breast-fed baby should have four or five stools a day. *Normal stools.* For the first three or four days, they are dark brown with a tinge of green, and pasty in consistency. They gradually become lighter, until by the end of the first week, they are of a light yellow mustard color, soft and pasty, and with a slightly acid odor. After the first week a breast-fed baby has from two to four stools a day.

A healthy, bottle-fed baby has but one or two stools a day, and these are of a paler yellow, firmer, larger, and more granular. The odor is more pungent, and may be cheesy, or foul.

Proprietary foods. After the use of proprietary foods, the color of the stools change to a light grey or light brown.

Drugs. Iron and bismuth change the stools to a dark, almost black color.

When calomel is given in effective doses, the first portion of the stool that is expelled may be normal, but the last portion is loose and green. This is directly due to the action of the drug.

Curds in the stools. When either the fat or the protein is not properly digested, they will appear in the stools in the form of curds, or whitish round or oblong lumps of various sizes.

Fat curds are small, soft, white or yellowish lumps, about the size of a pin's head, or a little larger. Protein curds, are hard, white or yellowish, shiny, round or oblong lumps from the size of a small pea to a fair sized bean.

If the curd is put on a board and pressed with a piece of wood, a fat curd will flatten out easily, while a protein curd requires some pressure.

Stools showing excess of fat. If the trouble is excess of fat, the stools will generally be loose and grass or light-green, or rarely pale grey and in small lumps, or large, pasty and greasy, with a very rancid odor.

Protein curds. Large and hard white or yellowish curds, formerly considered due to faulty digestion of the protein, are now considered the result of milk that is too rich in cream. When skimmed milk is used, they disappear.

Stools showing excess of sugar. Frequent loose, green stools, sometimes frothy, and with an offensive, sour and pungent odor, and with much gas, are caused by excess of sugar, or proprietary foods, which all contain large amounts of sugar. When this condition lasts for a few days the buttocks become red and sore.

Stools from overfeeding. Infants who are overfed may have four or five normal stools daily, often immediately after feeding; or they may be more numerous, from four to seven a day, and fairly well digested, but containing a large amount of mucus. On the other hand, some children who are

overfed will only have one stool a day, and this will be large, light-colored and pasty, with a foul odor.

Pale, almost white, pasty stools show *Inactive liver.* activity of the liver. A good dose of calomel will remedy this condition.

The stools will be loose, grass-green in *Inflammation* color and contain mucus. This condition *of the bowels.* should be treated as a case of severe diarrhoea.

In nearly all severe forms of indigestion, we find loose, green stools containing curds and *Indigestion.* mucus, and with a foul odor, so that it is often very difficult to know where to place the blame. In making a diagnosis, a child's other symptoms must be taken into consideration as well as the character of the stools. (See chapter on Indigestion.) In many cases, no absolute diagnosis is possible, without a careful laboratory examination.

Stools that are granular with some curds and mucus are not unfavorable if the child is gaining in weight.

The feeding should be made weaker or changed when the stools are—

1. More than five a day.
2. Very green.
3. Very foul smelling.
4. Accompanied by much gas.

Bright green, watery stools or stools with a large amount of mucus should be treated as a case of severe diarrhoea.

Normal stools with a brick-red discoloration on the napkins signifies that the child requires *Brick red* more fluid, especially water. This discolor- *discoloration.* ation will disappear in a few hours after plenty of water has been taken by the child.

INDIGESTION.

As a child thrives and gains in weight only when his food is properly digested, any symptoms showing derangement of the digestion must receive prompt attention, and the cause be rectified.

The bowels must always be emptied by a cathartic, calomel if the child is constipated, or castor oil if he has diarrhoea.

Treatment. In nursing infants, the further treatment of indigestion due to any cause not connected with the mother's milk is explained in the chapter on Diarrhoea.

In the case of a bottle-fed baby, the food must never be given full strength when he is not in his usual health. For a slight indigestion, the milk should be diluted by pouring off $\frac{1}{4}$ to $\frac{1}{2}$ of the mixture, and substituting the same amount of boiled water. Feed less frequently, but give plenty of water to drink between meals. In a case of acute indigestion, all milk should be stopped for twenty-four hours, and barley water or whey given instead. On recovery, begin feeding on a low formula, and, at first, use skimmed milk or partially peptonized milk.

Great care must be exercised in returning to the original formula after an illness, as when an infant is once seriously upset, he is much more liable to similar attacks in the future, and these from slighter causes. After any acute indigestion, the food should be very carefully increased so that the original strength will not be reached until after ten or fourteen days.

Feeding after illness.

Overfeeding is a frequent cause of indigestion in bottle-fed infants, and is often brought on by the mother's desire for the child to gain rapidly in weight. It should be remembered that a child is capable of digesting only a certain amount of food, and gains only when that is properly digested. Any excess is harmful, because it remains undigested, and will only ferment and cause trouble. Overfed and excessively fat babies are usually delicate, and are easily upset from slight causes.

A child who has been overfed becomes restless, fretful and appears uncomfortable. He sleeps badly, stops gaining or loses in weight, vomits after feeding, suffers from colic and wind, and his stools are abnormal. He always seems hungry, especially at night, and for this reason more and more food is given, thereby making the condition worse. An infant habitually overfed has a large abdomen or "pot belly," and often suffers from rickets.

In these cases, simply reducing the food, giving an amount suitable to the weight (see schedule, page 64) and lengthening the intervals, will often be the only treatment necessary.

When a child loses his appetite, but has no other symptoms, the intervals between feedings should be lengthened. If he is unwilling to drink, he must not be urged to do so; the bottle should be taken away, and not offered again until the next feeding time.

Loss of appetite is frequently a result of overfeeding, too frequent feeding, or of milk too rich in cream. It may also be due to an inflammation of the mouth.

The digestive capabilities of infants vary so much that although the formula suited to the age, weight and condition is given, one or the other ingredients may not suit a particular child. The amounts of fat, sugar, and protein may not be excessive, but the child's symptoms will show that he is not digesting it. When this happens, a change in the food must be made.

Indigestion from improperly proportioned food. If the fat is causing the trouble, the child may show it in two ways. Either he will vomit, and may later have diarrhoea with green stools, or, rarely, he will pass large, fatty, rancid stools, but will not vomit. In either case, he does not gain in weight, although there may have been a previous very rapid gain at first, as much as eight ounces a week or more, followed by a sudden upset.

Treatment. In the first condition of vomiting, without diarrhoea, make up a weaker formula with skimmed milk, or, if the symptoms are accompanied by diarrhoea, give whey, or buttermilk diluted half with water for a few days, and give less at each feeding. Then give a weak formula with skimmed milk and return very gradually to the whole milk.

For the second condition of large, rancid stools and no vomiting make up a weaker formula with skimmed milk, leave out the sugar and add instead Horlick's Malted Milk $\frac{1}{2}$ to $\frac{3}{4}$ the amount mentioned in the directions, or Loefflund's Malt Soup one to three teaspoonfuls to the day's feeding.

Indigestion from excessive protein. Recent investigations and experiments have shown that indigestion from protein in the ordinary milk modifications is a myth, and the fault should be put on the cream or sugar.

The proper treatment for this condition is to use whey or partially peptonized milk for a few days; or, to the day's feeding, add one grain of sodium citrate for every ounce of the mixture, for three or four days. When there is much gas, reduce the amount of sugar, and add two grains of sodium benzoate to each feeding for a couple of days. This will help in some cases. When there are many protein curds in the stools, boil the milk for the next week or two.

Too much sugar, or proprietary foods, which all contain large amounts of sugar, are sometimes the cause of trouble. The child has loose, green, sometimes frothy, sour, or pungent stools, and may suffer from flatulence and sore buttocks.

Indigestion from excess of sugar. Use half the amount of milk sugar given in the formula until the symptoms have improved.

Chronic Indigestion. Indigestion in bottle-fed infants sometimes persists in spite of all changes in the milk, and strict attention to all details connected with the feeding. When this condition becomes chronic, it is necessary to make some radical change in the food. A wet-nurse will often be the means of a satisfactory solution of this problem. When this is not possible, the use of whey or diluted buttermilk for a few days will sometimes help in restoring a child's digestion to its normal condition. But as there is not enough nourishment in whey alone

to permit one to keep a child on it for long, as soon as an improvement is noticed, a little cream or beef juice should be added to the whey in the following proportions: Cream, $\frac{1}{2}$ ounce to every 20 ounces of whey, and increase the cream gradually in a few days to two ounces. For an infant over six months old give in addition beef juice (cold process, see page 173), one to four teaspoonfuls once a day at the midday feeding.

Wholly or partially peptonized milk is of great value in cases of chronic indigestion or of acute illness; its use should not be continued indefinitely, not more than two months at the most, for if the child is over four months of age, there is some risk of scurvy from its exclusive use. Where the milk is wholly peptonized while the child's symptoms are severe, the time of peptonization should be gradually shortened until the child's stomach is trained to digest the raw milk mixture. (See peptonized milk, page 75.)

There are some cases where the use of condensed milk or some patent food will succeed for a short time when all other forms of feeding have failed. Notwithstanding their undoubted temporary value in many apparently hopeless cases, if they are used for too long a time, disastrous results will follow, in the shape of rickets or scurvy.

Condensed milk is especially useful when a child has intestinal symptoms, colic, and wind. It should, however, not be continued longer than two or three weeks, by that time the child should begin again on a weak fresh milk formula.

*Sweetened
and unsweet-
ened con-
densed milk.*

*Condensed
milk and
patent foods.*

When the sweetened condensed milk is used, Borden's Eagle Brand is recommended, beginning with one part of condensed milk to fifteen parts of boiled water for a child three months old, and gradually increasing to about one part milk to eight parts water; or one teaspoonful poured out from the can into the spoon and mixed with four ounces of water at first, and the strength of this mixture gradually increased by taking less and less water until only two ounces of water are required to one teaspoonful of condensed milk. Do not use less water as the proportion of sugar will be too high in the mixture. The milk should not be taken out of the can with the spoon, as the amount removed in this way varies with the skill of the operator, and is far from accurate.

With the unsweetened brand one does not run the risk of giving too much sugar, but it must be used within two days, as it does not keep so well. One teaspoonful poured from the can and mixed with two ounces of water is the full strength, and should not be exceeded. If half a teaspoonful of milk sugar is added to every three ounces of this mixture the proportions of the whole will be suitable for a child three to six months old.

Mellin's food, or Horlick's Malted milk, being free from starch, can be given at any age when the child is constipated, or not gaining as he should, but if used in the proportions given in the directions, will make the mixture contain too much sugar. It is therefore safer to give from $\frac{1}{2}$ to $\frac{3}{4}$ the amount recommended by the makers, and sugar must never be added when either of these foods is used.

Starchy foods, with the exception of barley water (mentioned on page 65) should not be given until a

child is over six months old. After this age, some of the patent infant foods containing starch, such as Eskay's, Nestle's, Imperial Granum, etc., can be used for a short time with advantage in some cases.

COLIC AND WIND.

In a nursing baby colic is due to too frequent nursing, overfeeding, or too rich milk. (See *Causes.* chapter on Nursing.)

In bottle-bed babies, the chief causes are overfeeding or the giving of indigestible food, especially sugar and starchy foods. Constipation, cold feet and giving cold food also causes colic.

The child cries, draws up its legs, and gives evidences of distress. The stomach is hard and distended, the hands and feet may be cold, and the face pale. Rumbling sounds can sometimes be heard in the bowels.

In mild cases, the stomach should be gently rubbed for a few minutes, or the child made to lie on its stomach on the mother's lap, and the back patted with the palm of the hand. A hot water bottle to the stomach is very soothing, and the administration of a half teaspoonful of peppermint water mixed with a little hot water will often be followed by an eructation of gas, which will give great relief.

If the bowels are loose, a good dose of castor oil, followed by the application of hot compresses to the abdomen will soon relieve the symptoms. In severe or neglected cases, a hot saline colon irrigation should be given.

If the bowels are costive, give calomel followed by mild laxatives, and see that the bowels move regularly.

In sudden acute cases of colic, the food should be greatly diluted for the next twenty-four hours. In chronic cases, feed the child on whey or partially peptonized milk for a few days, then give a weaker whole milk formula than before the attack.

VOMITING.

Vomiting in infants is due to so many causes, that for the sake of convenience I shall discuss it under different headings, and begin with the most common causes, as follows:

A.—1. Overfeeding.

2. Too rapid feeding.

3. Too frequent feeding.

4. Handling or playing with a baby after feeding.

5. Tight abdominal binder.

B.—Other causes due to the excess of some ingredient in the milk.

1. Excess of fat (a very common cause).

2. Excess of sugar.

C.—Vomiting may be the result of:

1. Acute indigestion (the result of catching cold).

2. Chronic constipation.

3. Habit.

D.—Vomiting is often brought on in bottle-fed infants by:

1. Indigestible food.

2. Stale food.

3. Too strong a food on first trial.

4. Too frequent changes in the food.

E.—Vomiting occurs at the onset of certain diseases and from some abnormal conditions.

With the exception of the causes mentioned under the heading D, these conditions may exist in both the breast-fed and the bottle-fed.

Nursing and bottle fed infants. The chapter on Nursing includes overfeeding, too rapid feeding, too frequent feeding, also excess of fat in the mother's milk; and the details of treatment are there explained. Excess of sugar in the mother's milk during the last few months of nursing may cause vomiting, but this is very rare, and would necessitate immediate weaning.

A—1. Overfeeding or 2. Too rapid feeding. When vomiting is due to either of these causes, it will occur immediately after a meal.

If the child finishes his bottle in less than fifteen or twenty minutes (the correct length of time), examine the nipple, and replace it, if necessary, by one with a smaller hole. If the vomiting continues, the amount of the feeding is probably too large, and should be reduced by about two ounces per feeding. The intervals between feedings can also be lengthened to at least three hours with advantage.

Treatment in bottle fed infants.

In this case it will be sufficient to lengthen the intervals between meals to at least three hours. A child should never be coaxed to feed, nor fed at irregular intervals.

3. Too frequent feeding.

This very frequently produces vomiting when indulged in soon after feeding, and should on no account be permitted. (See chapter on Artificial Feeding, General directions for Feeding.)

4. Handling and playing with a baby.

5. Tight abdominal binder. It is always well to examine the clothing of a vomiting infant to see if the binder or any other article of clothing is fastened too tightly around the stomach or abdomen.

B—1. Excess of fat. This condition will be indicated by repeated vomiting an hour or more after feeding, and sometimes by the character of the stools.

Treatment in bottle-fed infants. In bottle-fed infants the treatment for this condition is explained in the chapter on Indigestion.

2. Excess of sugar in bottle-fed infants. Vomiting may result from the use of condensed milk, malted foods, or too much cane sugar. It is frequently accompanied by flatulence, sore buttocks, and other symptoms. The treatment consists in the use of milk sugar only, and this in reduced amount.

C—1. Acute indigestion. This is frequently brought on by cold hands and feet, and insufficient clothing. Vomiting will usually be accompanied by colic, and followed by diarrhoea.

Treatment. The child must be kept warm. For treatment in the case of a nursing infant see the chapter on Diarrhoea. The treatment of a bottle-fed baby is given in the chapter on Indigestion under the headings of Treatment and Feeding during illness.

The frequent vomiting of a small amount after nearly every feeding is sometimes due to
2. Chronic Constipation. constipation. This condition may be remedied by the regular administration of a mild cathartic, for a time.

Habit is often responsible for chronic vomiting, or

3. *Habit.* "spitting up," and some children develop the faculty of throwing up any food they may dislike. It takes time and patience to remedy this condition, the treatment consisting in reducing the usual amount of each feeding, or by nursing for a shorter time, for a few days. If the child shows signs of thirst, give water between meals.

Faulty diet is frequently responsible for vomiting in artificially-fed children, and chief among the errors is the giving of:

*D—Vomiting
from errors
in diet.*

1. Unsuitable or indigestible food, which irritates or overstimulates the stomach.
2. Stale, contaminated or insufficiently cooked food.

3. Food to which the child is not accustomed, and which has been given in too large an amount.

4. Too frequent changes in the food.

Whenever a child vomits repeatedly, and the mother is in doubt as to the cause, pending the arrival of a physician, the treatment should be along the following lines.

*General
Rule.*

1. Give barley water for the first three or four feedings.

2. Nurse or feed less, and give water between feedings.

3. Lengthen the intervals between feedings.

4. In artificially-fed children, use skimmed milk, or whey, or in more severe cases, partially peptonized *skimmed* milk, in place of whole or top milk.

5. Give less sugar of any kind.

6. Give laxatives, except when there is blood in the stools.

7. If the symptoms do not abate, give a colon irrigation, preferably with a solution of bicarbonate of soda, one teaspoonful to one pint of warm water.

In any case:

Dilute the food, and give less in amount. Dilution alone is not enough, for if the usual quantity is given, its bulk will often cause the vomiting to continue, owing to its mechanical pressure on an already sensitive stomach.

Vomiting often occurs in certain diseases and conditions which require the immediate attention of a physician. Among these are the onset of fevers, contagious or infectious diseases, and abnormal conditions of the blood, stomach, and intestines, besides many others.

Of the latter, two are briefly described below, because the first (Acidosis) may become very alarming, and even cause death, and its treatment is very simple; and because in the second condition (Pyloric Stenosis) a mother often makes the serious mistake of weaning her infant without consulting a physician, under the impression that her milk is to blame.

This condition appears mostly in children between two and four years of age, and rarely under the age of one year. It is caused by the accumulation of poisonous products in the blood, often due to an excessive amount of milk in the diet.

Previous to the onset of the attack, the child may be "out of sorts," and complain of headache and slight pain in the stomach. A few hours later he begins to vomit all food, water, and even cracked ice. The breath often has a peculiar sweet apple odor, and the child is drowsy and tired. The glands in the neck may swell. A positive diagnosis of Acidosis can never be made, however, without an examination of the urine.

The treatment consists in the free administration of bicarbonate of soda. As much as will go
Treatment. on a ten-cent piece should be dissolved in a little water and given every hour. If the vomiting does not cease in a few hours, a colon irrigation of a solution of bicarbonate of soda, in the proportion of one teaspoonful to one pint of warm water, should be given. Improvement follows almost immediately.

After recovery, not more than one pint of milk should be allowed in the day.

This is a condition not at all uncommon in the first few weeks of life. It consists of a spasm or
Pyloric narrowing of the outlet of the stomach, so
Stenosis. that the milk is not passed on, but accumulates, and is eventually vomited. As very little food gets into the intestines, there is also marked constipation. Prompt medical attention is very necessary to relieve this condition.

DIARRHOEA.

The cause of diarrhoea in a nursing baby is usually to be found in the mother's milk and the
Nursing treatment for this is explained in the chapter on Nursing. Other causes may be
infants. catching a cold, or the result of lowered vitality from too much clothing, or from heat, especially in the summer months.

Nurse less, give plenty of water between the feedings, and lengthen the intervals.
Simple This treatment will usually be sufficient.
diarrhoea.

In severe diarrhoea, with or without vomiting, stop

Severe diarrhoea. nursing for twenty-four hours. Give $\frac{1}{2}$ to 2 ounces of cold whey, rice water, or al-bumen water, every hour or two. In case of great weakness give brandy in small amounts as explained later.

After twenty-four hours nurse for not more than five minutes every four hours, and give plenty of boiled water between nursings. Gradually return to regular nursing after three or four days.

Bottle-fed infants. The most frequent causes in artificially-fed infants are overfeeding, too much fat, too much sugar, and, sometimes, too much protein. These have all been considered in the chapters on Stools and Indigestion, and the treatment explained.

Diarrhoea is often brought on by bad or impure milk, or by lack of cleanliness in its preparation, by too frequent feeding, or by sudden changes in the food to which the child is not accustomed. The cutting of teeth very rarely causes diarrhoea, although it is popularly supposed to do so. Children fed on sweetened condensed milk are especially liable to diarrhoea, owing to the excess of sugar.

It may also be the result of giving indigestible or insufficiently cooked food; or, in the case of older children, of fruits and vegetables that are stale or unsuited to the child's age. Certain infections or intestinal diseases often begin with diarrhoea.

No disease causes more deaths in infancy than diarrhoea, and it is a symptom that should never be neglected.

In ordinary mild cases the onset is slow. The child

Simple diarrhoea. may be restless, sleepless, and fretful; he usually suffers from colic and flatulence and may vomit, this depends on the severity of the attack. From twelve to twenty-four hours later the child's bowels begin to move more often than usual. The stools at first are normal, but as they become more frequent, they are smaller in amount, and thinner in consistency. The color turns to green, and they may later contain mucus. Ten or more stools a day are not unusual.

Find out the cause if possible, so as to avoid similar attacks in future. Begin treatment by emptying the bowels thoroughly with castor oil. If the case is a mild one, dilute the food $\frac{1}{4}$ to $\frac{1}{2}$ with water, gradually resuming the usual feeding in two or three days.

If the symptoms do not abate, stop all milk and replace it with whey or rice water, but give only half the usual quantity, with plenty of water between feedings. Do not give any milk for three or four days, or until the symptoms have entirely subsided and then begin with very small amounts.

This is a very severe form of diarrhoea, and is known as summer diarrhoea because it is most prevalent during the months of June, July and August; July being the month when more cases occur than at any other time. It is undoubtedly contagious or infectious, and is more often due to impure or contaminated milk and want of cleanliness than to any other cause. This is shown by the fact that babies at the breast rarely get it, unless their surroundings are unhygienic. Other frequent causes are overfeeding, too rich milk, errors in food, warm weather, and a weakened condition of the child.

With this acute form of diarrhoea, a child has fever, about 102°-105°F. He is restless and sleepless, or listless and apathetic. From twelve to twenty-four hours after the onset of fever, the stools become loose and green and contain curds and mucus. There may be anywhere from ten to twenty movements a day, often accompanied by vomiting. The skin is at first flushed and dry, but later becomes pale. The face looks pinched, and the eyes are sunken. The child suffers from thirst, and his tongue is coated and dry; his hands and feet feel cold and may be blue. There is rapid loss of weight and the child's whole appearance denotes serious illness.

A cathartic must be given at once, preferably calomel followed by castor oil five hours later
Treatment. (for doses, see common remedies, page 176). Give a colon irrigation with a saline solution (see Injections, page 179). If the child has cold hands and feet, give a hot mustard bath (see page 20), wrap him in blankets that have been warmed by the fire and place a hot water bottle at his feet and one on either side of his body.

Give the child nothing by mouth except hot water which has been boiled and cooled to about 102°F., or as hot as can be drunk with comfort, for the first twelve to twenty-four hours. *This is absolutely necessary to ensure recovery.* No greater mistake can be made than to give a child food when it is in this condition. Milk in any form must be withheld, and rice water or albumen water (see page 172) given thereafter for the next two or three days, but in very small quantities. Begin by giving two or three teaspoonfuls every hour for two or three hours, then an ounce every hour for two or three hours, then gradually increasing

the amount and lengthening the intervals so that the child is given not more than half the amount suitable for his age and weight every three hours.

If the child is very weak during these days, give small quantities of brandy or whiskey as follows: 5 drops for a child under six months old, 10 drops from six to twelve months old, 15 drops over one year, diluted in at least two teaspoonfuls of water, and administered every three or four hours. This should not be kept up for more than two or three days, and on no account should larger doses be given.

If the diarrhoea does not improve on the second day, give another colon irrigation, and repeat it the next day if the stools are frequent and very foul smelling, and the abdomen is distended. After the stools have lost their foul odor, and not before, give the child very small quantities of castor oil, for in minute doses this is constipating and very soothing to the bowels. For an infant under three months give three drops, and to older children five drops, not oftener than every four or five hours. It can be administered with an ordinary glass medicine dropper, or from a teaspoon containing a little water.

Children over nine or ten months old can be given broths, or bouillon made from chicken, veal, or beef.

Put a woollen band snugly around the child's abdomen. If he is feverish or hot, give lukewarm sponge baths every three or four hours, and do not put too much covering on the bed.

On the third or fourth day, if the diarrhoea has improved, peptonize half a pint of skimmed milk for half an hour, then add two or three teaspoonfuls to the rice water at each feeding, and gradually increase the amount of the milk. The proportion, however, must never exceed the amount suited to the child's age and

weight. Peptonize the milk less every day, until only boiled skimmed milk and rice water is given. Then begin with small amounts of whole milk previously boiled or pasteurized, and during the rest of the summer never give milk that has not been so treated.

Try to resume the original feeding gradually, bearing in mind that the child will often not be able to stand as strong a mixture as before until the advent of cooler weather. Never attempt to return to the original formula under two or three weeks after the onset of the attack.

No paregoric or patent medicines of any kind should ever be given during an attack of diarrhoea except by the order of a physician.

A mother should not attempt to treat a severe case of diarrhoea without the advice of a physician. Severe diarrhoea is sometimes complicated by thrush, bronchitis, inflammation of the ear, and convulsions.

Many severe cases of diarrhoea could be prevented if proper treatment were begun as soon as the first symptoms showed themselves. No slight looseness of a child's bowels should ever be allowed to continue in summer time. Diarrhoea may often be prevented by taking the following precautions during the warm season:

- | | |
|--|--|
| <i>Rules for
feeding in
hot weather.</i> | 1. Feed at longer intervals. |
| | 2. Dilute the food $\frac{1}{4}$ to $\frac{1}{2}$, especially at midday. |
| | 3. Make up milk formulas with skimmed milk. (See page 69.) |
| | 4. If not sure that the milk is very pure, pasteurize or boil it. |
| | 5. Give a sponge bath two or three times a day if the child suffers from the heat. |

6. See that the child's clothing is light and loose.
7. Give plenty of boiled water to drink between feedings.
8. Keep the child out of doors in the shade as much as possible.
9. Be sure that food, utensils and hands are always scrupulously clean when preparing the food.

CONSTIPATION.

Constipation is not very common among nursing infants, but is one of the most troublesome conditions among those artificially fed, and in older children. If neglected, and allowed to become chronic, it is often the cause of a baby's failing to gain in weight, and may lead to more serious trouble.

Before giving any treatment the cause must be first determined, and the constant use of enemas and cathartics, especially castor oil, should not be resorted to, as the relief obtained from them is only temporary, and their repeated use is very frequently one of the chief causes of the disorder.

In very young infants constipation is often the result of inability to make the necessary effort to expel, and the insertion of a gluten suppository will be immediately followed by a normal stool. It is only when this condition is joined to symptoms of indigestion, such as foul breath, restlessness, etc., that a cathartic should be given.

The two chief causes of constipation are an improper diet, and lack of muscular development in the intestines. The latter condition is often aggravated by neglect, and the failure of the mother or nurse to begin early training of the bowels for their daily function.

Causes. If a breast-fed baby is habitually costive, it is the mother's diet and regime which should receive attention, as it is usually the result of high protein, or low fat in her milk. (See chapter on Nursing, page 32, for diet and regime to be followed by the mother.) Sometimes the addition of one bottle a day of the regular formula will remedy the condition.

Breast-fed baby. If it is quite certain that the mother's milk is deficient in fat, and this can only be definitely known by having the milk analyzed, it is sometimes advisable to give the baby a little fresh cream and warm water before nursing; the cream should not be bought as such, but should rise on the best certified milk, and one or two teaspoonfuls mixed with two or three of water given. Caution must be exercised with this, for if a little too much fat is given, indigestion will be added to the constipation, and matters will be worse than before.

Another method of giving the child additional fat if the cream does not agree is to administer a little pure olive oil after nursing, beginning with half a teaspoonful three times a day, and, if necessary, increasing to one teaspoonful. One-half ounce a day will usually be found sufficient.

In young infants who are bottle-fed sluggishness of the bowels may be caused by:

Causes in artificially-fed infants. 1. Overheating the bottle, thereby most converting it into boiled milk.
 2. Peptonized or boiled milk.
 3. Insufficient water, especially in warm weather or if the child has been in overheated rooms, or too warmly clad.

4. Continued use of food containing too little solid matter, as condensed milk, broth and barley-water.

5. Food containing too much protein, or too small an amount of fat or cream.

With older children. With older children, it may also be caused by insufficient exercise, and by giving too much starchy food, and too little vegetables and fruit.

Other causes which are much less common are:

Rarer causes. 1. General weakness and debility, occurring in rickets, malnutrition, etc.

2. The result of severe and prolonged diarrhoea, which has weakened the bowels.

3. Malformation or injury in the lower part of the bowels. (This condition is very rare.)

Treatment. The treatment in the great majority of cases is by attention to the food. It will sometimes be sufficient to increase the amount of the food, or to make it stronger, but both should not be done at the same time.

If this does not answer, the cause may be deficiency in fat, and this can be remedied by using top milk (see page 67), or by the addition of one-half to two ounces of cream to the day's feeding. Care should be taken not to add too much fat, never giving a richer formula than No. 9 where the mixture would consist of nearly one-half top milk. Another method is to give olive-oil in the same way as mentioned above.

When constipation is caused by too high protein, it

may be accompanied by colic and flatulence and loss in weight. In this case, whey will often answer the purpose, with the addition of cream, one to two ounces to each twenty ounces of whey.

Mellin's food, or Horlick's Malted Milk or Extract of Malt, or Loefflund's Malt Soup added to the food will often produce normal stools, but the milk sugar or cane sugar must be omitted. None of these preparations can be given when there is vomiting.

Laxative for young infants. A very satisfactory laxative for a young baby is Milk of Magnesia, one-half to one teaspoonful in the last bottle of the day, at

10 P. M.

Too hasty changes should not be made in the mode of treatment, and any remedy selected should be given a fair trial before rejecting it in favor of another. The simplest measures should always be tried first, and, in any case, plenty of water should be given between feedings, as this has a very beneficial effect on the bowels.

When a child reaches the age of six or seven months we have a greater choice of methods of treatment for constipation. One to be recommended is the use of oatmeal water instead of barley water, or plain water for diluting the milk. The Health Food Company's Oatmeal Flour is the one generally used, and directions for making oatmeal water are given on page 172. Beef juice and broths will also be introduced into the diet at this age, and these changes in the food will help in overcoming habitual constipation.

After seven or eight months of age, orange or prune juice can be given, beginning with two teaspoonfuls one hour before the second bottle in the morning, and gradually increasing it to one or two ounces, at twelve months of age.

At this age, syrup of figs will be found a very useful and harmless laxative, one or one and a half teaspoonfuls can be given daily when necessary.

After six months of age, well cooked oatmeal can be strained, and the gruel or jelly mixed with the feedings, beginning with one ounce to each twenty ounces of mixture.

Baked apples and the pulp of stewed prunes will be of help in overcoming constipation in a child over eighteen months old. After two years a few other fruits may be given in moderate quantities, such as fresh, ripe, peeled pears and peaches, but not apples, bananas, or any fruit containing seeds. Fruit must never be given in excess in an effort to overcome constipation.

Do not give older children large amounts of oatmeal or whole wheat bread in attempting to correct habitual constipation, they only irritate the intestines, and in many cases are passed in a totally undigested condition.

Do not give castor oil as a remedy for chronic constipation at any age; in small doses it is constipating and in larger ones it will clear out the bowels, but will have a costive after-affect, making it necessary to repeat the dose indefinitely.

A dose of calomel is indicated when there is flatu-

Calomel. lence, and the stools are dry, hard, and white, but it must not be used continuously.

Importance of regular habits. Above all, remember the importance of training a child's bowels to a free evacuation every day at the same hour. This habit will often be the means of preventing many of the ailments of childhood.

MALNUTRITION AND MARASMUS.

Malnutrition and marasmus in infants are different degrees of the same condition. The term malnutrition may be used to denote a case of digestive disturbance with rapid loss of weight for a short time; stationary weight, or steady, slight loss for a longer time; this becomes marasmus when the condition is aggravated, and the child becomes greatly emaciated and still continues to lose weight steadily.

Causes. These conditions may be the result of tuberculosis, syphilis, and other diseases, but by far the most common causes are improper feeding, lack of fresh air, and unhealthy surroundings.

Marasmus is more often seen in institutions, but malnutrition is fairly common everywhere. It is frequently due to digestive disturbances brought on by insufficient dilution of cow's milk in early infancy, for although there are children who can stand strong mixtures of cow's milk from birth, and thrive on it, they are exceptions to the rule. Excess of cream or fat is also a frequent cause, as is overfeeding, and sometimes excess of starch.

These errors in feeding are often the result of mistaken zeal in trying to make a baby gain weight

rapidly. This he often does for a short time, without showing any signs of indigestion, but, suddenly, the weight begins to remain stationary, and then the child gradually sinks into a condition of malnutrition and perhaps marasmus.

Irregularity in the hours for feeding, unsuitable food, chronic constipation, or any other causes resulting in digestive disorders and imperfect nutrition may also lead to marasmus.

<i>Symptoms and treatment.</i>	The digestive symptoms vary in different cases, vomiting and diarrhoea being present in some, and not in others, but a constant symptom is steady loss of weight. Infants in this condition usually sleep badly, and are anaemic.
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This condition is one that calls for careful study and constant supervision by a physician, and no hard and fast rule can be laid down for feeding in these cases.

If the baby is under six months of age, it is advisable to try a wet-nurse. Above that age wet-nursing will rarely be successful, and the question of feeding is most difficult. In severe cases very weak mixtures of peptonized milk often have to be given for some time before any improvement is noticed. In all cases the stools and general symptoms must be carefully watched.

If the weight, which has been dropping steadily, becomes stationary, or rises ever so little, *do not on any account* increase the food or change it in any way.

In some cases too much dilution of food will not answer, and a small quantity of stronger food will give better results. At other times when fats are badly tolerated, a little olive-oil is sometimes useful.

If the bowels are not loose and there is no vomiting

the addition of a small amount of malt soup is occasionally beneficial. The physician, however, will be the best judge of this, and his orders must be carefully carried out. Many cases of marasmus have been made much worse by following the advice of well-meaning friends.

Very intelligent care is required from the mother or nurse co-operating with the physician, as an infant in this condition has very little power of resistance, and his chances of life are small if any complications arise. Everything possible should be done to preserve and increase the child's vitality, as much will depend on it.

The infant needs an abundance of fresh air, but he also requires a great deal of warmth, particularly as regards his hands and feet. If necessary, a hot water bottle should be kept near the feet all the time. In summer, he ought to be out of doors all day, in the spring or autumn for the greater part of the day, and in the winter when the weather is unsuitable or too cold he should have an "indoor airing" three or four times a day (see Airing). Strict attention should be paid to the ventilation of the nursery, but the baby must never be allowed to become chilled.

A salt-bath should be given daily (see Bathing) and followed by a rubbing from head to foot with oil, or better, cocoa-butter. Always rub towards the heart, that is, from the ankle towards the hip, etc.

A baby suffering from marasmus must not be allowed to remain too long in one position; he must be turned occasionally when sleeping, and when awake, he should be picked up and carried about a great deal. He must not be allowed to cry too much, and espe-

*Additional
care.*

*Airing and
warmth.*

*Salt bath and
oil frictions.*

*Frequent
changes of
position.*

cial care should be taken to keep him always clean and comfortable.

The prospect for a baby's recovery is usually more hopeful the older he is, for he is apt to have more vitality than in the earlier months.

Chances of recovery. Although the improvement in cases of malnutrition or marasmus is invariably a very slow process, with proper care the ultimate recovery is absolute, and after the age of three or four years they will be as strong as other children.

Malnutrition in older children. Malnutrition in children over two years old is often the result of a previous severe illness. They are anaemic, nervous, and show little resistance to diseases. Disturbances of digestion arise from slight causes, and they need constant care in order to keep them in even moderate health. Regularity in feeding, plain diet, no overfeeding, plenty of fresh air, no excitement, and plenty of sleep will usually result in a successful cure, but the improvement will be slow, and constant supervision is necessary.

COLDS AND THEIR CAUSES.

Colds and their complications are most frequently brought on in children of all ages by the following causes:

The most frequent causes. 1. Insufficient clothing, easily shown by cold hands and feet, blue lips, etc., or too light head covering when out of doors, especially in young infants.

2. Excessive clothing, inducing perspiration, with the result that cold air often blows on a moist skin.

3. Overheated and badly ventilated rooms, tending to lower the child's vitality.

4. Contact with other children or adults suffering from colds.

5. The use of another's pocket-handkerchief.

6. Kicking off bed-covers while asleep; to remedy this the blankets should be securely pinned or tied down, or a thicker night dress put on the child.

For the prevention of colds in infants in arms the following advice may be of use.

A few rules

*for preventing
colds in
infants.*

1. Do not subject a baby to sudden changes of temperature, such as carrying him from a warm room through a cold hall without the addition of extra clothing.

2. Do not hold him near a window in cold weather.

3. Do not allow the baby to play on the floor in cold weather; there is always a draught near the floor. An "exercise-pen" raised two or three feet is an excellent device, as it enables the child to roll about and kick, without running the risk of catching cold.

4. Never put a baby in a draught in the house, or in a windy spot out of doors.

5. Keep him out of the dust, particularly if living in a city.

6. Be on your guard against a sudden drop in temperature in the baby's room at night, and have an extra blanket or quilt ready to put over him, when necessary.

With older children wet feet are a most common cause of colds. When the stockings or shoes are damp they should be changed immediately.

*Older
children.*

I have also found by experience that the wearing of woolen underwear and woolen stockings

for children who take much exercise is most conducive to frequent colds. Children over 18 months old should wear cotton underclothing only.

Where children suffer from repeated or chronic colds and coughs, enlarged tonsils and adenoids are often the cause. When this is found to be the case, they should be removed by a surgeon. This simple operation is always followed by a marked improvement in the child's general condition.

When children are over a year old, the chest and back should be sponged daily with cold water, followed by rubbing, thus rendering the child less susceptible to repeated colds.

If the cold is in the head, with discharge from the nose, it will give relief to spray it by means of a nasal atomizer with warm boric acid, using a solution of one teaspoonful to a pint of water.

A few drops of melted vaseline, or albolene dropped in the nose with a medicine dropper will also help to relieve it.

When the cold is accompanied by a cough, it is advisable to keep the child in an even and warm temperature, and preferably in bed. Rub the chest, neck, and back, morning and evening, with a mixture of half capsicum vaseline and half plain vaseline, or with equal parts of camphorated oil and spirits of turpentine.

A croup kettle should be a part of the furnishings of every nursery, and should be used two or three times a day in all cases of colds and coughs. The "Simplex" croup kettle is the simplest, and is not so easily upset as most of

the others. It can be obtained through J. T. Dougherty, No. 409 West 59th Street, N. Y. City. To a pint of water in the kettle is added a teaspoonful of Compound Tincture of Benzoin; then a tent is arranged by placing sheets over the crib, leaving only space enough to insert the spout of the kettle. The child should inhale the steam from this for fifteen or twenty minutes at a time. If he is old enough to sit up, and prefers to do so, the tent can be made by raising an umbrella over his head, and covering top and sides with sheets, closing them in as before.

In addition to this treatment, a simple cathartic such as castor oil or calomel should be given, as it will help to dissipate the cold. *Additional treatment.* When a child has a high temperature, or seems to be in much discomfort from a cold, no time should be lost in sending for a physician.

A cold may often be cut short by prompt treatment and by keeping the child indoors for a day or two, or until the symptoms have entirely disappeared. To take a child, who is suffering from a cold, out of doors is sure to make matters worse, unless the weather is very warm.

BRONCHITIS.

Bronchitis is often the result of a cold that has been neglected. The bronchial tubes are the parts affected, and if allowed to remain untreated the condition is apt to get worse, and pneumonia may follow. It is accompanied by a dry cough and loss of appetite. There is a wheezing in the chest, and when the hand is placed against it, a "purring" can often be detected. There is slight fever, about 100°-102°F.

The child should be kept in bed, in a warm, even and moist temperature, and should be made
Treatment. to inhale the steam from a croup bottle, as shown in chapter on colds (page 117). The food must be simple and easily digestible and diluted $\frac{1}{4}$ to $\frac{1}{2}$ with water, if the patient is an infant. If the child is breast fed, one ounce of water should be given before putting him to the breast.

Local applications. Local applications are most beneficial, and if used early enough will often shorten the attack.

The mustard plaster is the one most commonly employed and is made as follows:

Mustard plaster. Mix one part of English mustard with five parts of flour, add warm water enough to make a thin paste, and stir. Take a piece of muslin long enough and wide enough when folded to go around the chest. Spread this on a table and smear the mustard paste in the centre, folding all four sides up so as to close it tightly. Before applying, rub the child's chest and back lightly with sweet oil or vaseline to prevent blistering. Put the mustard plaster over the chest and pin a piece of flannel over it and around the child like a bandage. Leave it on for ten or fifteen minutes, lifting it from time to time in different places to see if the skin is red. When the chest is reddened, remove it, wipe the skin dry with a towel, and cover the child up carefully.

A convenient form of mustard plaster, especially for use when travelling, is that known as "Papier Rigolot" or "Mustard Leaves." It is only necessary to wet it, and apply it to the skin for three or four minutes only, as it is very strong.

In place of a mustard plaster, other simpler applica-

Other applications. tions are just as efficacious. When obtainable, they have the advantage of being more easily and quickly applied, and can be rubbed on the neck as well. One is capsicum vaseline, which comes in tubes. A small amount should be squeezed out and mixed with an equal amount of plain vaseline, and then lightly rubbed over the chest, back and neck.

Another useful application can be made from a mixture of equal parts of camphorated oil and spirits of turpentine. This should be applied in the same way.

When the bronchitis is of a mild type, one of these local applications morning and evening will be sufficient. In severe cases it might be necessary to repeat them every four or five hours, and as the symptoms improve they can be discontinued.

To relieve the cough. For the cough, liquid peptonoids with creosote may be given every two hours; $\frac{1}{2}$ teaspoonful to a child under three months old, a teaspoonful from three to six months old, and one teaspoonful more for every six months of age, but not more than five or six teaspoonfuls at any age. It should be given less frequently when the cough becomes easier and looser. The use of the croup kettle will often assist in breaking up an obstinate cough. For directions for use, see chapter on "Colds."

It is very important to keep a child indoors in an even temperature, until all symptoms have disappeared. A cough is only prolonged by allowing him to go out of doors too soon.

SPASMODIC CROUP.

This is a spasm of the vocal cords, following a catarrh of the larynx, and usually occurs in young children.

Some hoarseness and cough are noticed in the day-time. The child goes to sleep comfortably, and an hour or more afterwards wakes up suddenly with a loud barking metallic cough, anxious face, and great difficulty in breathing, and appears to choke. It is most alarming, but there is really no danger if the proper treatment is given at once. The temperature may be slightly raised.

Give the child at once a teaspoonful of wine of ipecac, or syrup of ipecac, *one of which should always be kept in the house*, and repeat this dose every ten minutes until he vomits. One or two doses are usually sufficient, but no harm can be done by repeating it until he gets sick. He will bring up his food as well as some mucus, and will then feel greatly relieved.

The room should be kept warm, and the child should be made to inhale from a croup kettle (see Colds). If a croup kettle is not available, he can inhale the steam from an ordinary kettle. Relief is often afforded by warm compresses or flaxseed poultices alternating with compresses wrung out of ice-cold water and applied to the throat. To make the air of the room moist, wring some towels out of hot water and hang them on chairs or ropes stretched across the room. Keep the child in this room and moist atmosphere for the next few days. He may have another attack the same night, or for the next two or three nights. He should be given a cathartic, and his diet should be

reduced. If he is not relieved after vomiting, and the breathing is not improved, be sure to send for a physician at once.

EAR-ACHE.

Ear-ache often follows coughs and colds in the head, influenza (grippe), pneumonia, measles, etc., and may be present in any run-down condition.

Causes. Infants suffering from ear-ache have fever, and show a high temperature, 102° to 105°F., are restless or drowsy, have little appetite, and may vomit. They may move the hand up to the ear, and usually toss the head from side to side violently. Children old enough to talk, naturally complain of the pain, and show the above symptoms as well.

A physician should be consulted, as in many cases incision of the drum is necessary, and will give immediate relief. In the meantime, heat should be applied to the ear in the form of hot compresses, a bag containing hot salt, or a hot water bottle. The ear should also be irrigated with a hot boric acid solution, one teaspoonful to the pint, from a fountain syringe suspended or held two feet above the child's ear. The nozzle should be held from $\frac{1}{4}$ to $\frac{1}{2}$ inch from the opening in the ear. This process should be repeated every three or four hours. If the ear is already discharging, it should be irrigated three times a day, until no more pus is seen. The length of time that an ear discharges varies very much. If the drum is opened early by a physician, the discharge may stop in a week, and seldom lasts longer than three weeks. When the drum has burst of its

own accord, the discharge may continue for many weeks.

SPRUE OR THRUSH.

When an infant's mouth or feeding utensils are not kept perfectly clean, he is apt to get sprue or thrush. This consists of a minute fungus growth, which thrives on the tongue and inner sides of the cheeks, but may spread to the throat. Sprue has the appearance of small particles of curdled milk, each about the size of a pin's head. Any attempt to wipe them off will cause slight bleeding.

It usually occurs in a bottle-fed baby, and the first symptoms noticed are loss of appetite, refusal to take the bottle, and peevishness; the reason for this being that the mouth is sore and sucking is painful.

The treatment is simple. The bottle and nipples must be kept clean. A solution of one teaspoonful of soda bicarbonate to three ounces of water should be rubbed on all the white spots. To one end of a piece of wood a little smaller in diameter than an ordinary lead pencil attach a little absorbent cotton and twist it round to make a swab. This is better than using a finger. The mouth should be treated in this way after each feeding.

A 1 per cent. formalin solution may be used in addition once a day. Dip a cotton swab in the solution, then press the swab gently against a piece of blotting paper to get rid of excessive fluid and then rub the white spots fairly hard. The spots disappear in about a week. The amount of sugar in the child's food should be reduced by one-half for the next week.

ENLARGED GLANDS.

The glands of the neck behind and under the jaw, and below the ear often swell to a large size. This is always caused by some infection, and may be due to one of the contagious or infectious diseases, influenza or catarrh, malnutrition or marasmus, decayed teeth, or enlarged tonsils. When glands have existed for a long time, tuberculosis may be the cause.

Sometimes the child is otherwise perfectly well, and the glands appear quite suddenly. In the majority of cases, these sudden swellings are not in any way serious, they often disappear gradually. Occasionally they break down, and require incision to let the pus escape; but this is a simple matter, and recovery is complete.

It is always advisable to consult a physician in regard to these cases.

ADENOIDS.

Adenoids are soft, glandular whitish masses which grow on the roof of the pharynx near the posterior opening of the nostrils, thus obstructing the free passage of air.

There are few conditions that are responsible for more disorders than adenoids. During the colder months of the year, and especially in moist localities near the sea-level, children with adenoids have constant colds in the head, persistent cough and recurring attacks of bronchitis.

Adenoids are the cause of children snoring at night, also of restless sleep and night-terrors. Children

having large adenoids breathe entirely through the mouth, and when the condition has existed for some time they have a vacant and stupid expression, with the lower jaw drawn down and a pinched-looking nose.

Adenoids are often responsible for deafness, inflammation of the ears, and anaemia, and they predispose to diphtheria and tuberculosis. Stunted growth, backwardness, and nervousness are directly traceable to them.

Prompt removal by operation is the only treatment.

Treatment. The operation is a slight one, unattended by danger, and is followed by immediate improvement.

It is seldom necessary to operate on children under one year old.

TONSILS.

The tonsils are two soft glands, one on each side of the throat, near the base of the tongue.

Large tonsils are responsible for frequent inflammation of the throat, resulting in coughs, *Symptoms.* bronchitis, tonsillitis, anaemia, etc. A child with large tonsils is more susceptible to diphtheria, scarlet fever, tuberculosis, and rheumatism.

Children with large tonsils and a history of repeated attacks of sore throat and its many complications should be operated on for removal of the tonsils. In skilful and experienced hands the operation is without danger.

WORMS.

Worms are found chiefly in older children, nursing

Varieties of worms. babies and infants being practically free from them.

The most common varieties are the tape-worm, the round worm, and the thread or pin-worm. A diagnosis of this condition can only be made after finding the worms in the stools.

Symptoms may be altogether absent, or they may be indefinite or misleading. There may be bad breath, loss of appetite, colic, diarrhoea, anaemia, intense itching of the anus, and various nervous derangements, such as headache, dizziness, etc.

Tape-worm. This worm is from ten to thirty feet long, and not more than $\frac{1}{3}$ of an inch wide at its widest part. It is composed of hundreds of small segments, and is flat like a tape.

Round-worm. This varies in length from four to ten inches, and looks very much like the ordinary earth-worm.

Thread-worms. These are from $\frac{1}{3}$ to $\frac{1}{2}$ of an inch long, and look like small pieces of white thread.

Although the worms themselves often cannot be found in the stools, their eggs can nearly always be detected with the aid of a microscope.

Treatment. The treatment should be left in the hands of a physician.

NIGHT TERRORS.

It is not at all unusual for young children to wake up suddenly at night, crying loudly, and apparently in great fear of someone or something. They are quieted with difficulty, and for a few moments hardly seem to recognize those about them. These attacks may occur with great frequency or only at long intervals.

In nearly every case the cause is due to some disturbance of the digestive tract. It may be constipation, or indigestion following over-eating or eating some indigestible food. Occasionally worms, or enlarged tonsils, or adenoids may be responsible for these attacks.

When the attack is due to indigestion, it will be sufficient to give a cathartic, and regulate the diet carefully, particularly as regards the evening meal, which must be very light. This usually effects a cure. During the attack treat the child kindly; scolding will only make him worse.

RETENTION OF URINE.

The most common cause of this condition is highly acid urine. It may also result from inflammation of the genitals from an infection or from want of cleanliness. In boys it is sometimes due to inflammation and marked swelling of a tight foreskin, which has never been pushed back, and under which a lot of white, pasty material has been allowed to accumulate.

If no water has been passed for twelve hours, place the child in a hot bath at a temperature of about 105°F. This will usually have the desired effect. If not, give a hot enema with one pint of hot water to which one teaspoonful of salt has been added, and at the same time put a hot compress over the region of the bladder or the lower part of the belly. Catheterization is rarely necessary, and should be done by a physician only.

In boys with swollen parts, a cold, wet dressing with a solution of boric acid should be applied after the hot bath or enema, and if the swelling does not

diminish after a few hours of these applications, a physician should be sent for to remove the white, pasty material, after which the inflammation will subside very quickly.

In girls, when there is inflammation of the parts, a small pad of cotton or linen soaked in a warm solution of boric acid, should be applied and changed every two hours after gently washing the parts with boric acid solution. If the inflammation does not subside, or if a yellow discharge is noticed, a physician should be notified, as it is very contagious, and liable to cause a severe inflammation of the eyes.

Parents are often mistaken as to the amount of urine voided. If a large pad of absorbent cotton wool is placed over the genitals and examined from time to time, they will be able to judge the amount more correctly.

JAUNDICE.

A little more than one-third of children born become jaundiced or yellow in the latter part of the first week of their existence. The yellow color in the skin is most marked on the face and chest and in the eyes.

The color lasts only a few days in most cases, and no alarm need be felt. No treatment is necessary.

THE TEMPERATURE.

Examine the thermometer and see that the mercury is below 97F., if not, shake it. Oil the bulb with a little vaseline, place the child with his stomach on your lap and expose the buttocks; separate the folds with one hand and insert the thermometer gently into the

*How to
take the
temperature.*

rectum with the other for about an inch and hold it there for from one to two minutes, depending on the kind of thermometer. After reading the temperature, wash the thermometer in cold water and soap. It is well to shake the mercury down after use, as it is liable to be forgotten later on, and mistakes made. When a child is sick in bed, turn him over on one side and draw his thighs up and proceed as before. The temperature is normal when it is between 98 and 99½°F., with occasional slight fluctuations.

A separate thermometer should be kept for the baby's use and not used for other children.

It must be remembered that slight causes often produce high temperature in young children for a short time, and that this is not apt to be as serious as the same temperature in an adult. Even a temperature of 104° need not cause alarm unless it is continued for more than a few hours, or the child shows other serious symptoms of illness. The same cause that in adults would only occasion a rise of three or four degrees in temperature, might in children result in a rise of five or six degrees.

Nervous children or those recovering from an illness often have a temperature slightly above normal for days at a time.

In any illness accompanied by fever, the temperature is nearly always higher towards evening than in the morning.

In fever, the urine is always scanty and highly colored, staining the diapers yellow or brick-red. In this case the child requires more water to drink.

EXAMINATION OF THE THROAT.

A mother should be able to examine her child's mouth and throat so that she may recognize any abnormal condition. She should make a practice of looking at them from time to time, especially whenever the child coughs or shows any signs of illness.

How to examine the throat.

The child should be held by the nurse, so that its back rests against her right shoulder, she then passes her right arm around the child's chest and holds his two arms while her left arm supports his body. The mother with her left hand steadies the child's head and with a tongue depressor or spoon opens the child's mouth gently, examines the tongue and gums, and then depressing the tongue with the handle of the spoon, examines the throat.

If no second person is available, the child's arms may be controlled very efficiently by winding a folded sheet about its arms and body and securing it with a safety pin.

TRAINING OF BOWELS AND BLADDER.

The training of a child's bowels should begin at about the second month, and can be done in the following manner. A small pot is placed between the nurse's knees, and on this the baby is seated, taking care to support his body firmly, and to brace his back against the nurse's chest. At first it may help to insert a little cone of oiled paper or a small stick of soap into the orifice, and to tickle it gently for a few moments pre-

Training of bowels.



EXAMINING THE THROAT

vicious to seating him on the pot, but after a short time this will not be necessary, when once the habit has been formed.

As a normal baby has from one to two movements a day, he should be trained to have them
Suitable at the same hours. Twice a day, immedi-
hours. ately after the morning and afternoon feed-
ings, is the most convenient. If this is kept
up with regularity, and the baby is in good health, he
can sometimes be trained in this respect as early as
the age of three months. The comfort of forming this
habit at the earliest possible age will be readily appre-
ciated, as it means a great saving of labor; and it is
also beneficial to the child's health, as it will be con-
ducive to regular movements of the bowels through-
out childhood.

The training of the bladder is not so easily accom-
plished, but a great deal can be done by
Training of the practice of holding a child over the pot
bladder in about a dozen times a day.
daytime. In many cases, this is so successful that
by the end of the first year diapers can be
dispensed with entirely during the child's waking
hours.

At night, a child's bladder is rarely under his control
until he has reached the age of two and a
Bed wetting. half or three years. After three years, bed-
wetting may be considered abnormal, but
is of frequent occurrence. It is very seldom a symp-
tom of any bladder or kidney trouble, but the most
frequent causes are acidity of urine, malnutrition, bad
condition of the nervous system, heredity, constipation
and local irritation. Once it has become a settled
habit and the child has reached the age of five or six
years it is difficult to cure, unless the cause should be

entirely local, such as tight foreskin, etc., when a physician should be called upon to remedy the condition.

Attention should be paid to the child's general condition and to the state of his nerves. One *Regime to be followed.* should also be particular to keep him on a simple, nourishing diet and not to allow him any excitement. His urine should be examined by a physician.

In addition to this, he should be given plenty of fluid early in the day, but none whatever after 4 P. M., receiving a dry supper before going to bed. He should be taught to hold his urine as long as possible during the day, in order to accustom the bladder to full distension.

Just before bedtime his buttocks and *Cold hip bath.* genitals should be immersed in cold water for a minute or two, and the spine should also be sponged.

The bed covering should be fairly light, and the child should be encouraged to sleep on his side and not on his back. This can be done by *Sleeping on side.* tying a piece of thin material about the chest with a knot on the back between the shoulders.

At 10 P. M. or 11 P. M. every night he ought to be taken up.

In spite of all these measures, there are some children who still continue bedwetting until nearly up to puberty, when the habit will cease for no apparent reason. It is a weakness common to both sexes, and some are also affected with slight dribbling during the day.

Some cases resist treatment.

It must be remembered that at night, bedwetting is often almost entirely involuntary. Punishments are never of any use. On the other hand, by offering rewards and appealing to a child's pride, more will often be accomplished, but at best, it is a very difficult habit to break and the cure usually takes a long time.

DEVELOPMENT.

Weight of average normal child:

At Birth, $7\frac{1}{4}$ lbs., more or less.

At 1 week, $6\frac{3}{4}$ lbs., losing $\frac{1}{2}$ lb. until mother's milk secretes.

At 10 to 14 days, $7\frac{1}{4}$ lbs. same as at birth.

At 1 month, $8\frac{1}{4}$ lbs.	} Gain about $6\frac{1}{2}$ oz. a week.
At 2 months, $10\frac{1}{2}$ lbs.	
At 3 months, 12 lbs.	

At 4 months, $13\frac{1}{2}$ lbs.	} Gain about $4\frac{1}{4}$ oz. a week.
At 5 months, $14\frac{1}{2}$ lbs.	
At 6 months, $15\frac{1}{2}$ lbs.	

At 7 months, $16\frac{1}{2}$ lbs.	} Gain about 3 oz. a week.
At 8 months, $17\frac{1}{4}$ lbs.	
At 9 months, 18 lbs.	

At 10 months, $18\frac{3}{4}$ lbs.	} Gain about $2\frac{1}{2}$ oz. a week.
At 11 months, $19\frac{1}{2}$ lbs.	
At 12 months, 20 lbs.	

and thereafter 5 lbs. a year for every year until the 11th birthday, thus, at

2 years.....	25 lbs.	7 years.....	50 lbs.
3 years.....	30 lbs.	8 years.....	55 lbs.
4 years.....	35 lbs.	9 years.....	60 lbs.
5 years.....	40 lbs.	10 years.....	65 lbs.
6 years.....	45 lbs.	11 years.....	70 lbs.

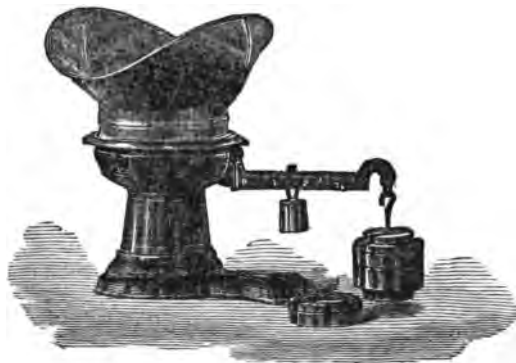
For the next three years a child gains about 10 lbs. a year, thus at

12 years.....	80 lbs.
13 years.....	90 lbs.
14 years.....	100 lbs.

Most mothers expect infants to gain 6 to 8 oz. a week during the first year, and this often leads to over-feeding. During illness children lose weight very rapidly, but when convalescent they often regain their weight equally rapidly, as much as 6 to 8 oz. a week.

Until it is a year old, a child should be weighed once a week at a fixed hour, most conveniently just before the bath. Delicate or sick children should be weighed twice a week. A record of the weights should be carefully kept. No comparison with the weights of other people's babies should be entertained, as no two babies grow up alike, and a mother should not be discouraged when her baby does not gain in weight according to the schedule. At times, especially during the warm summer months, some babies gain very little or not at all, but they are not on this account to be overfed. A continuous increase of 7 oz. a week is rare and is apt to end in trouble. Gain in weight is often arrested by trifling disturbances of health, as slight cough, cold in the head, constipation, teething, etc.

There are many baby scales on the market at a reasonable price, from \$3.50 up. Scales consisting of a basket supported on springs, which work a needle on a dial, are not reliable, as the springs either get out of order or get weaker by usage, besides the reading of the weight is uncertain whenever the baby is restless. All reliable hardware



BABY SCALE

manufacturers, such as Howe or Fairbanks, have a variety of suitable scales from which to make a choice; they should read as low as one-half ounce.

At birth, 20 inches; at 6 months, 25 inches.

1 year, 28½ inches, a growth of 8½ inches in the year.

2 years, 32 inches, a growth of 3½ inches in the year.

3 years, 35 inches	} a growth of 3 inches in the year.
4 years, 38 inches	
5 years, 41 inches	
6 years, 44 inches	

7 years, 46 inches	} a growth of 2 inches in the year.
8 years, 48 inches	
9 years, 50 inches	
10 years, 52 inches	

At 3 or 4 months a child can hold its head up.

Muscular At 6 or 7 months a child can sit erect.

development. At 9 or 10 months a child tries to get on its feet.

At 12 or 13 months a child can walk alone.

At 14 or 15 months a child can run about.

Speech. At 1 year a child can use single words.

At 2 years a child can use short sentences.

Teeth. A child has 20 milk teeth and they make their appearance as follows:

At 5 to 8 months.....2 lower central incisors.

At 8 to 12 months.....4 upper incisors.

At 12 to 18 months.....2 lower lateral incisors and
4 anterior molars.

At 18 to 24 months.....4 canines.

At 24 to 30 months.....4 posterior molars.

General development is often delayed by neglect, improper feeding, sickness and other causes, such as heredity.

DENTITION, AND CARE OF THE TEETH.

The first set of teeth are twenty in number, and the time of their appearance varies greatly in different children, but the following is the usual order of their arrival at various ages.

*Order of
appearance.*

At 6 months.....	2 teeth
At 1 year.....	6 teeth
At 1½ years.....	12 teeth
At 2 years.....	16 teeth
At 2½ years.....	20 teeth

The chief causes of delayed dentition are rickets, malnutrition, or ill-health of some kind, but *Causes of this is not always the case by any means, as some perfectly healthy children are very late in teething, and delayed dentition is sometimes a family trait. Nursing infants are usually earlier than the artificially fed ones in their dentition.*

It is a common mistake amongst mothers to attribute disturbances of the digestive tract in infants a few months old to teething, and to allow the symptoms to go unchecked for this reason; one fallacy being a wide-spread belief that diarrhoea is a favorable condition during dentition. Teething is very seldom responsible for these conditions amongst healthy bottle-fed or breast-fed children. These, as a rule, cut their teeth without any inconvenience whatever. In a few, dentition will be accompanied by very slight symptoms, such as loss of appetite, irritability and restlessness, slight rise in temperature about 100° to 101°F., slight diarrhoea, occasional vomiting, and less than the usual gain in weight. One or more of these symptoms may be present, and the child is noticed to drool and put his fingers in his mouth.

The mouth should be carefully examined, and if the gum is found to be swollen and inflamed, that part should be gently rubbed with the finger three or four times a day. This simple measure often relieves the pain and

symptoms; but care must be taken to wash the hand carefully before inserting a finger in the baby's mouth. If the baby is breast-fed, he should be given an ounce of water before nursing, and the nursing period shortened; if he is bottle-fed, dilute the usual formula $\frac{1}{4}$ to $\frac{1}{2}$ with water. This should be continued until all unfavorable symptoms have subsided.

Until the age of two years a child's mouth and teeth should be carefully washed two or three times a day by means of a piece of absorbent cotton twisted around a toothpick, or the little finger, and dipped into a solution of boric acid. After the age of two years, a soft toothbrush and a simple tooth powder should be used. When a child is three years old, his teeth should be examined at least once a year by a dentist.

VACCINATION.

As a precaution against smallpox, every child should be vaccinated as early as possible, i. e., during the first year. Vaccination should never be delayed, except in cases of severe illness or malnutrition. When properly carried out with sterile hands, vaccine, and instruments, there is no danger whatever.

The site of vaccination is a matter of choice, but for the sake of convenience, in dressing and undressing, the leg seems to be the best place for an infant.

A red pimple is noticed on the third or fourth day, and a day later a small blister is seen, which enlarges during the next three or four days to about $\frac{1}{3}$ inch in diameter; it is grey in color and is depressed in the middle. The blister dries up, forming a crust, which drops off in a week or two. About the eighth

day a bright red inflammation of the skin around the blister is noticed, which disappears in a few days.

Occasionally, about the ninth or tenth day, there may be a rash somewhat resembling that of measles or scarlet fever.

About a week after vaccination, the child may be somewhat restless, and have a little fever with loss of appetite for three or four days.

CIRCUMCISION.

This small operation is strongly to be advised whenever the foreskin is very tight or very long, and in every case when it cannot be pulled back with ease. The mother or nurse should pull the foreskin back two and three times a week after giving the bath and wash the underlying parts, as a white, pasty material will accumulate and cause irritation, which later is apt to lead to self abuse. A tight foreskin is sometimes responsible for convulsions on account of the difficulty in passing the water, and if the latter is accompanied by much straining, this may cause prolapse of the rectum, i. e., the protrusion of the lower part of the bowels.

Under six months of age the operation is very simple and without danger, as no ether or other anaesthetic need be given.

THE CRY.

At birth it is absolutely necessary for an infant to cry, in order that air should enter the lungs.

Necessity He should be made to do so by slapping
for crying. him on the buttocks.

A baby should cry every day for a few

minutes, for by crying the lungs are kept expanded. (See chapter on Exercise.)

The cry of health and illness. It is not an easy matter to distinguish between the cries, but a mother or nurse, who is constantly with a baby, will usually learn to tell the difference between the cry of illness or pain and the usual cry in health.

The latter is a strong, loud cry, and the child gets red in the face. The cry of pain is also strong and loud, but is not continued for long, and is accompanied by other evidences of distress, such as drawing up the legs, and wrinkling the forehead.

The cry of illness is feeble and whining, and the child shows irritability when disturbed.

The cry of hunger is prolonged and fretful, but not very loud.

The cries of temper or of a habitually spoilt child are very much alike, strong and violent, and cease as soon as the child gets what he wants. In these cases the child should be allowed to cry it out, and no harm will result if he is in good health.

Crying at night. When a child cries at night, see that his hands and feet are warm, and examine his diaper, and change it if necessary.

A well baby seldom or never cries solely because of a wet or soiled napkin, unless his buttocks are sore; and if the crying is repeated or prolonged, the cause is usually some digestive disturbance. It is then advisable to give a laxative at once, and to reduce the strength of the food the next day.

Tears. An infant does not shed tears until the age of three or four months. Once the flow of tears has been established, their disappearance in crying during any sickness is not a favor-

able sign. On the other hand, their reappearance is an indication of improvement.

KISSING AND PLAYING WITH BABIES.

The kissing of an infant on the mouth should never be permitted, under any circumstances, by either adult or child. *Kissing.* Diphtheria, tuberculosis and syphilis have often been communicated in this manner, for even healthy adults often have the germs of these diseases, and although they may never suffer from them, they can communicate them to a baby. Children suffering from contagious diseases in their earliest stages often transmit the disease by kissing.

Infants ought never to be kissed by any one, except on the forehead, and even that should very seldom be permitted.

To play with, or amuse an infant under the age of six months is actually injurious, and may *Playing* be the means of making him nervous and *with babies.* irritable. Even such slight amusements as swaying a baby, or rocking him, all tend to stimulate the rapidly growing brain, and are harmful for this reason.

Even after the age of six months, it is wiser to let an infant amuse himself, as he will soon learn to do, if left alone. When constant efforts are made to amuse a child, he is apt to become nervous and fretful, to sleep badly, and to suffer from indigestion. He should never be played with immediately before bedtime at any age.

The practice of allowing young babies and children to be present at any celebration cannot be too strongly

condemned. The gratification of showing off the baby and seeing him admired is not worth having at the expense of his nerves and health.

The children of nervous parents need to be especially guarded against any excitement; they should have quiet surroundings, and see very few people. Some children have, undoubtedly, a tendency to nervousness, but this can be overcome as they grow older by careful and intelligent management.

Older children should never be frightened, nor as they grow older, should they have harrowing tales told to them. As soon as they are able to run about, all their amusements should be out of doors as much as possible. Romping and all exciting games should be confined to the early part of the day, so as not to interfere with their sleep at night. Too frequent childrens' parties, especially when indigestible or rich food is given, are not to be encouraged. Parties should be in the daytime only. The practice of keeping children up late at night is most injurious.

TOYS.

In buying toys for infants, care must be taken not to select anything that can be swallowed, as most children have a natural instinct to put everything in their mouths. For young babies of about six months of age, rubber rattles, animals, and dolls are the best, as they are smooth and can be easily washed. No toys covered with wool or hair, or with loose pieces that can be swallowed or put in the ear or nose, or with sharp

points to injure the eyes, or paint to come off, should be chosen for a baby.

Undesirable, also, are those that can be broken into bits, or those that would be apt to frighten a child with sudden noises or movements.

All toys must be carefully washed before giving them to a baby, and the washing should be frequently repeated afterwards.

The toys that give the most pleasure are the simplest; and this is true of both infants and older children. Elaborate mechanical contrivances fail to please children for long. They soon tire of them because nothing is left to their imagination.

*Simple toys
the most
desirable.*

One simple toy at a time will give a child more opportunity to develop his own resources for amusement than a large number, which only bewilder him. As soon as he is old enough, he should be taught to put away one toy when he takes out another, and to keep all those not in use neatly in a closet.

*One toy
at a time.*

For older children the best toys are the ones which give them an opportunity for using their faculties and imagination in such measure as they develop. Toys like blocks, toy-soldiers, engines, picture-books, dolls, small sets of dishes, beads to string, and pictures to paint are always sources of enjoyment. Where it is possible, a box of sand from which different shapes can be made, will give children a great deal of pleasure.

*Toys for older
children.*

BAD HABITS.

Below are mentioned some habits often seen in young children, which, if not corrected, may result in serious harm.

The pacifier, or rubber nipple, is entirely unnecessary, and should never be allowed. Its

The pacifier. prolonged use is harmful, and is apt to be followed by:

Thick, misshapen lips.

Irregular teeth.

Deformed palate.

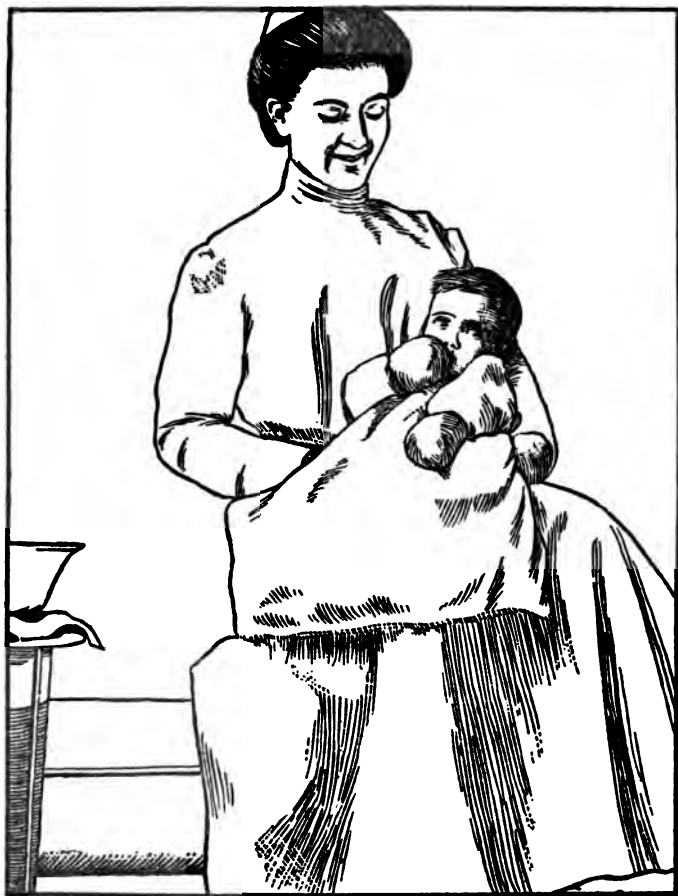
Adenoid growths, from constant irritation.

Infection, as it is never clean, and if it is passed around from one child to another, it may carry the germs of whooping cough, diphtheria, etc.

Some children are also addicted to sucking their fingers, or any objects they can seize. This habit is easily remedied by folding a piece of cardboard about six inches broad around the elbows, so that they cannot be bent. Secure the edges with adhesive plaster, then fold a piece of cheesecloth or old linen around the cardboard and fasten the linen above and below the elbow to the sleeve by means of safety pins. As the child cannot bend its arms, it cannot suck its fingers or other objects. Special mits can also be worn over the hands.

Thumb-sucking. Masturbation is the habit of irritating the genitals.

This is done in various ways, by touching *Masturbation.* them with the fingers, by rubbing the thighs against each other, and by rubbing the genitals against the leg of a chair or table. During the act the child's face becomes flushed and afterwards perspiration may be noticed on the forehead and face.



"HAND-I-HOLD" MITS FOR THUMB-SUCKING

This is followed by drowsiness and the child may go to sleep.

Children addicted to this habit show nervous symptoms, they are restless, irritable, do not sleep well, lose their appetite, and become anaemic.

In infants, the use of thicker diapers that will keep the legs well apart is often sufficient. Older children must be watched carefully during the day, and at night when going to bed. If thigh-rubbing is persisted in, a small pillow can be placed between the knees, and fastened there.

MILK IN INFANTS' BREASTS.

New-born infants frequently have a liquid resembling milk in their breasts. This must be severely let alone, and it will disappear. The practice of squeezing it out often causes abscesses, and must on no account be permitted.

ACCIDENTS.

Should a child show signs of choking after swallowing too large a morsel of food, or "swallow the wrong way," as it is sometimes called, lift him up by the legs with the head hanging down, and give him a few sharp taps on the back with the palm of the hand. This will dislodge the food. When pins, buttons, coins, etc., are swallowed do not give a cathartic, as the article will be hurried through the stomach and bowels with a possibility of causing serious injury. If left alone, mucus from the stomach and bowels will collect around the article and make its passage smooth

and harmless. If this accident occurs in an infant, give the same food as usual, and if an older child give more cereals, mashed potatoes, etc., for a few days. Examine every stool carefully for the article.

When the burn is slight, there is redness, pain and tenderness of the skin, which is not destroyed in any way. The best treatment in these cases consists in the application of wet dressings of gauze or old linen soaked in a solution of bicarbonate of soda (cooking soda), a heaping teaspoonful of soda to the pint of water. Boric acid solution is also efficacious. The dressings should be kept wet continuously with either of these solutions to prevent their adhering to the burnt surfaces and to relieve the pain.

In very severe and extensive burns, it may be found necessary to place the child in a tubful of water at blood heat 98°F., until the arrival of the physician. When the burns have begun to heal, and the discharge to disappear, they may be dressed every day or two with sterile or clean boric acid ointment, one teaspoonful to an ounce of vaseline. This should be spread thickly on gauze or linen and the dressing secured by a few turns of a bandage.

Wounds and cuts should be attended to at once. Above all they must be kept clean, and should be washed at once in warm water with some absorbent cotton or other soft material.

Deep, punctured wounds, from nails, broken glass, splinters, etc., require thorough opening out and cleaning by a physician, or lockjaw may develop. While waiting for his arrival, wash the wound with Dioxogen and bandage a wet compress over it. When there is much bleeding, place a piece of absorbent cot-

ton or clean linen over the wound and apply firm pressure with the thumb or finger, until the bleeding stops and the cotton adheres. Then apply a light bandage.

Ice cold water, sniffed up the nostrils, often stops bleeding. Cold compresses held over the
Nose bleed. nose and the back of the neck may help. If this does not stop it, plug the bleeding nostril with a piece of absorbent cotton, using a match or bit of wood to push it in. If this does not answer, compress the lower part of the nose between the thumb and forefinger for a few minutes. The child should not blow its nose for some hours after the bleeding has stopped.

Compress the empty nostril with a finger
Foreign bodies in nose. and get the child to blow its nose; in this way most objects will be expelled. If not successful send for a physician.

No attempt should be made to remove objects in the ear, unless they can be easily seized
In the ear. with the fingers. It is better to await the arrival of a physician, as damage may be done to the canal or the drum.

Rubbing the eye makes matters worse. If tears collect in the eyes, wipe them towards the
In the eye. inner side. Lay the child on a bed or table, separate the eyelids with both hands, and let a second person drop some warm water from a piece of cotton or linen on the eyeball, or let the child use an eyecup or put its face in a basin of clean water and then open and shut the eye repeatedly.

An eyestone, which can be obtained at any drug-store, is often useful in removing objects from the eye.

- Bruised fingers.* Apply iced or very hot compresses, and bandage the fingers tightly.
- Stings of insects.* Apply a few drops of ammonia, or a compress soaked with Witch Hazel (Pond's Extract) or alcohol.
- Sunburn.* Apply cold cream or talcum powder; or, if severe, compresses soaked with witch hazel, or alcohol diluted with an equal amount of water.

CONVULSIONS.

Convulsions in infants are not at all uncommon. They are symptoms brought on by irritation of the brain or nervous system. Although very alarming, they seldom leave any permanent ill-effects.

Disturbances of digestion are the most frequent causes.

Causes. The next most frequent cause is Rickets. Convulsions also occur at the onset of acute febrile diseases, such as pneumonia, scarlet fever, etc.

Whooping cough, especially in young infants, is nearly always accompanied by convulsions.

Local irritation, such as burns, tight foreskin, etc., may bring on convulsions.

Convulsions from teething or worms are very rare indeed.

As a rule a convulsion comes on without warning.

Symptoms. The child becomes unconscious, the eyes vacant and fixed, or rolled up, the face becomes pale, the hands are clenched, and the muscles of the face, arms and body begin to twitch

The child breathes feebly, the forehead is cold and wet, and the lips and finger tips bluish. The convulsion may last from a few seconds to many minutes. After the attack the child is very weak and prostrated. One convulsion is apt to be followed by others.

In all cases a physician should be sent for at once.

When the convulsion is due to indigestion, *Treatment.* rickets, whooping cough, or local irritation, the child should be placed immediately in a hot bath. The temperature of the water should not be over 105°F., or as hot as can be comfortably borne by the mother's arm. If mustard is at hand, dissolve a tablespoonful in a cup and add it to a small tub of water or to six inches of water in a large bathtub. Hold the child in the water from five to ten minutes, meanwhile gently rubbing his body and limbs. Put a small towel dipped in cold water on his head and forehead. After the bath dry him gently but quickly, put him to bed wrapped in warm blankets, and keep him warm by the use of hot water bottles.

If the convulsion occurs in the course of some illness where there is high fever, put a cold compress on the child's head and gently sponge the body and limbs with cool water. Place a hot water bottle near the feet if they are cold, but do not put too much clothing over the child.

In all cases, a good dose of castor oil should be given after the bath or sponging.

Only water should be given for the next three or four hours, and for the next twenty-four hours the child should have no other food *After treatment.* excepting broths, barley water, or milk greatly diluted. His regular diet must be resumed very gradually.

RICKETS.

This is a chronic disease due to faulty nutrition which chiefly affects the bones, and occurs in infants, especially between the ages of six months and two years.

The great majority of cases are due to prolonged feeding on proprietary foods with an insufficient amount of fresh milk. Less frequent causes are fresh milk or food containing an insufficient amount of fat or cream. In rare cases, it can be attributed to excessive fat or cream in the food, or to prolonged use of boiled or sterilized milk.

Causes. The earliest symptoms are fretfulness, pallor, sleeplessness, and sweating of the head; the pillow is constantly wet, and the hair at the back of the head is worn off from restlessness.

Later, the abdomen becomes enlarged; this is known as "pot-belly"; the child is backward in development; either it cannot sit erect, or its teething is delayed or it is late in walking.

When this condition is neglected, many bones become enlarged and deformed, and, as the bones are very soft, a child often becomes bow-legged. The head, the wrists, and ankles are enlarged and the chest is deformed. There may be convulsions and child-crawling. The child is usually constipated, and is subject to frequent colds and intestinal troubles.

Later symptoms. Stop all proprietary foods, condensed milk, etc., and give good, fresh, whole milk in formulas suitable to his age. Add albumen water, fresh eggs, broths and beef-juice to the diet.

if the child is old enough. Give cod-liver oil emulsion. See that the child has plenty of fresh air, and keep him out of doors as much as possible. Attend to the regularity of his bowels, and give suitable cathartics and enemas, if necessary.

SCURVY.

Scurvy is a disease which occurs principally between six and eighteen months of age, but is most common between the seventh and tenth months. It usually attacks the knee and ankle joints, causing great pain.

Causes. The chief cause, in most cases, is the exclusive use of proprietary foods without the addition of fresh milk. A prolonged use of pasteurized, boiled, or sterilized milk or condensed milk is also a frequent cause.

The earliest symptom noticed is that the child cries when moved or taken up, or the diaper is changed, or when anyone touches the bed or bedclothes. The knee and ankle joints may be swollen and are *very tender*, but are *not hot nor red*. The disease may attack any joint in the body, but the knee is the one most commonly affected. The mother is liable to mistake scurvy for the result of an injury, rheumatism, or for paralysis, as a child suffering from this disease is unwilling to move because of the pain caused thereby, but the paralysis is only apparent, not real. Rheumatism is so rare as to be almost unknown in children under two years of age.

The position of a child with scurvy is often very characteristic. He will lie on his back with the knees slightly drawn up and widely separated. If he has any teeth, the gums may be swollen and purplish in color and

Other symptoms.

will bleed easily. The child looks pale and anaemic and has little appetite owing to the pain caused by sore gums.

There may be bluish marks resembling bruises on different parts of the body, especially the legs. In some cases there is bleeding from the nose and bowels.

The child must have fresh cow's milk, and also the juice of sweet oranges or prune juice, beginning with one-half ounce three times a day, one hour before feedings, and increasing the amount in a few days to one and a half ounces three times a day, irrespective of the age. If he is old enough he should be given in addition mashed or baked potatoes and apple sauce once a day.

If this treatment is carried out, marked improvement will be noticed in a few days, and a cure will be effected in two or three weeks.

PNEUMONIA.

Pneumonia is an inflammation of the lungs and is brought about by exposure to cold and wet,
Causes. or whenever the vitality of the body is lowered, as in malnutrition or marasmus, or it may follow a neglected or severe bronchitis, or as a sequence to one of the contagious diseases, as measles, etc.

There is rapid and shallow breathing, often accompanied by a grunt at each expiration, which
Symptoms. is very characteristic. There is a hacking dry cough, which may be very distressing. The face is flushed, the lips are blue and sometimes we may see fever sores (or herpes) on them. The tongue is coated, the skin dry and the urine scanty.

The child is drowsy and may be delirious. The temperature varies from 102° to 105°F.

The child must be put to bed at once in a light and airy room, and the temperature kept between 55° and 60°F. *Treatment.* The windows must be opened enough to admit fresh air, but without a draft. The bed clothing should be very light, just enough to keep the child's body and feet warm; a great deal of harm is often done by overloading the bed with blankets and quilts, which make the child restless and irritable and deprive him of sleep and rest. If he perspires about the head and neck, he has too many clothes over him. The diet should be fluid only. His usual bottle of milk must be diluted with $\frac{1}{4}$ to $\frac{1}{2}$ water. He should have plenty of cool, but not iced water to drink between feedings.

If breast-fed, he should be nursed as before and should get plenty of water between nursings. His bowels must be kept open, for it is important for them to move freely every day. It is well to give a good dose of calomel at the commencement of the disease and subsequently an enema of soapsuds if necessary.

If the child is very restless, he should be sponged from head to foot, with a mixture of half *Sponging.* alcohol and half tepid water, taking about fifteen minutes to go over the whole body, and sponging one part at a time, leaving the rest of the body covered. This sponging should be repeated every four hours if the child is still very restless. In addition an ice cap should be laid on the head.

If the child is quiet, but the temperature is high, i. e., over 104°F., put an ice cap on the head and give plenty of fluids to drink, and leave him undisturbed. Wet compresses may be used instead of the ice cap, but

must be wrung out carefully so as not to wet the pillow and the bedding.

Most children do not require medicines, unless complications arise, which should be attended to by the family physician. *

For the cough give one-half to one teaspoonful of liquid peptonoid with creosote in a little water every two or three hours for a child up to six months old; older children one teaspoonful more for every six months of age, but not more than five or six teaspoonfuls to a dose at any age.

THE SICK ROOM IN CONTAGIOUS DISEASES.

The room selected for a child suffering from any contagious disease should be, if possible, *Quarantine.* situated on the top floor, as there he can be more rigidly isolated, and the risk of infection for other members of the family will be much less.

Only the attending nurse and the physician should be allowed in the room; other members of the family must not be permitted to enter. Any children in the family who have been exposed to the contagion at the beginning of the illness should be quarantined in another part of the house until the period of incubation is past; those not exposed should be sent away from home.

The room should be large, light, and well ventilated, and it will be better to have another smaller *Room and* adjoining room set apart for the nurse to *furnishings.* change her clothes in, before going out to take her daily exercise, and also in the event of a second nurse being necessary. An open fire in the sick room is very desirable, when possible, also green shades at the windows so that the light may be

subdued if the patient's eyes are weak. All carpets, curtains, draperies, pictures, ornaments, and upholstered furniture should be removed, and nothing allowed to remain that cannot be burned or washed and thoroughly fumigated afterwards. A perfectly bare floor without any rugs is best.

The temperature should be regulated to 68°F. by day, and from 60° to 65° at night. *Ventilation.* Care of room. ate very frequently, covering the patient with extra blankets while doing so, or better, if the child can be properly shielded from draughts, keep the windows wide open day and night, except when changing the bedclothes or other coverings. The room should be kept very clean by wiping with damp cloths, which must be burned immediately after, the woodwork and furniture should be wiped daily with a solution of bichloride in the proportions of one to five thousand. (See Common Remedies.)

The meals for patient and nurse must be left outside the door on a tray for the nurse to bring in afterwards, and after use, all the utensils should be placed in boiling water for five minutes before being taken downstairs.

If the case is one of scarlet fever or diphtheria, the nurse should use an antiseptic gargle and nasal spray to guard herself from infection. She should wear a cap completely covering her hair while in the sick room, and all her clothes should be of cotton and washable. She must change every article of clothing in the adjoining room, and wash her face and hands thoroughly before descending for her daily walk.

In place of handkerchiefs for the patient, old pieces of muslin or gauze should be used for the purpose of cleansing the nose or mouth, and immediately burned. If there is no fire in

the room, a small box or bag should be kept to put them in and this sent down to the furnace.

All clothing and bedding both for patient and nurse should be soaked in carbolic solution, 1 to 20, and then boiled in it for two hours before going to the laundry. The practice of hanging sheets steeped in carbolic is not advisable, as carbolic acid poisoning has been known to result from it.

The chief thing to be remembered in connection with disinfection is scrupulous cleanliness, for carbolic and bichloride are effectual only when they follow a rigorous use of soap and water.

All toys and books for use during the child's illness, especially if it be scarlet fever, must be of a character that can be burned when the child is convalescent. A goodly supply of cheap toys and magazine pictures will be most welcome, for when the little patient is not very ill he will sleep better if propped up in bed occasionally with a warm dressing sacque on, and allowed to amuse himself a little, but in the case of measles, he must not read or strain his eyes in any way.

After measles or diphtheria, it is not necessary to disinfect so thoroughly as after scarlet fever; all linen and clothing should be treated in the same manner, but a thorough cleaning and fumigation of the room with formalin or sulphur is all that is necessary; formalin is the best disinfectant for a room, and the generator can be rented with full directions for use from almost any drug store; all cracks in the room must be previously stopped with cotton, and larger crevices pasted with paper. The room should be left overnight under fumigation and then thoroughly aired.

A child convalescent from scarlet fever must receive

a bichloride bath, 1 to 5,000 strength, from head to feet, before he leaves the room; he should then be wrapped in blankets and taken into another room, where he is given a bath of soap and hot water. He must wear clothes that have not been in the sick-room during his illness.

The room and its contents should receive a thorough fumigation in the following manner: The mattress and pillows must be either thoroughly disinfected by steam, or where this is not possible, they must be burned. All blankets and bedding should be boiled in carbolic solution, washed, and hung in the sun. All toys, books, papers, rugs, etc., that have been used should be burned. The room and all the furniture in it must be thoroughly washed, and then fumigated with formalin, and left for twenty-four hours. After this the ceiling should be rekalsomined and the walls repapered, or if they are painted, washed with bichloride solution of 1 to 2,000 strength.

CONTAGIOUS DISEASES.

I shall describe only briefly the more common contagious diseases met with in children; such as Scarlet Fever, Measles, Whooping Cough, Diphtheria, Mumps etc.

A correct diagnosis is sometimes very difficult, even for a physician. For instance, a scarlatinal rash on the abdomen may be called a simple stomach rash; and without laboratory examination, a mild form of diphtheria of the tonsils may be mistaken for a simple follicular tonsilitis.

The onset in all of these diseases is nearly the same,

and the mother should not waste time trying to find out what is the matter with the child, but should at once send for a physician.

It is a safe rule to make, that a physician should be sent for whenever there is a rash, a sore throat, difficulty in swallowing, a cough with difficult breathing, or whenever the child is drowsy or apathetic, or restless, irritable, and has loss of appetite.

The temperature is often no guide; in many cases of diphtheria it is not much over 101°F. Nursing infants under six months of age who are properly looked after are almost immune from contagious diseases, with the exception of Whooping Cough.

Whooping Cough.

In the early months of life, whooping cough is by far the most fatal of the contagious diseases. The period of incubation varies from one to two weeks. At first the disease cannot be distinguished from an ordinary cough, but after ten to fourteen days the whoop develops in older children. For this reason, a child with a cough should never be allowed near a young infant indoors or out, nor sleep in the same room.

During the paroxysms of coughing, the characteristic whoop is noticed, there is great difficulty in taking breath, the face gets red, and there is great prostration afterwards. The food is often vomited. Young infants do not whoop, but cough and hold their breath, and turn very blue in the face, and they may have convulsions.

There is no cure for whooping cough; a physician

Treatment. can, however, prescribe sedatives and greatly relieve the patient. The child should have plenty of fresh air day and night. There are many preparations in the market claiming to relieve and shorten the course of the disease, which may be of use in some cases. It is said that a sea voyage shortens the duration of the cough by several weeks.

Contact with other children should be avoided until the cough has completely disappeared, as the whoop often returns if the child catches cold.

A physician should decide when a child can be allowed to go among other children.

Chicken Pox.

This is a mild contagious disease which appears about two weeks after exposure.

There is a slight fever in most cases, 100°-102°F., and the child does not feel as well as usual.

Symptoms. The rash appears on the first day, comes out in crops and is most abundant on the trunk. We notice widely scattered pimples in various stages of development, and varying greatly in size; red spots, elevated pimples, little blisters, and later, blackish crusts. A few are always found on the scalp, and one or two in the mouth, the latter being a very characteristic location. There may be itching of the skin.

No special treatment is necessary. Keep the child quiet in bed for a couple of days, and empty

Treatment. the bowels. The undergarments should be of cotton, as woollen ones increase the itching. Carbolated ointment rubbed on the skin will allay the itching.

The child should be isolated until the rash has completely disappeared.

If the child is allowed to scratch the eruption, scars may be left permanently in the skin.

Diphtheria.

The germs of diphtheria attack the mucous membranes of the body, especially those of the nose and throat, and cause severe poisoning of the system.

When a child is exposed to the disease the symptoms may be delayed for several days.

Symptoms. Children who have been exposed to the disease should be frequently examined by their physician.

The most frequent sites of attack are the tonsil, larynx, and nose. On the tonsil we notice at first small greyish patches, which, becoming larger, join each other. Patches extend towards the uvula and other parts of the throat, and when they spread to the larynx they cause great difficulty in breathing and speaking.

Any continued bloody mucous discharge from the nose not due to a blow, or fall, or other injury, should be considered a case of diphtheria until the contrary has been proved by examination at a laboratory.

The onset of symptoms is very slow, the temperature is often not above 101°-102°F. There is loss of appetite, apathy and restlessness. There may be slight pain in swallowing.

Antitoxin should be administered as early as possible. Delay in its use makes the outlook

Treatment. very bad. In doubtful cases it should always be given, as it can do no harm.

Quarantine. The length of time in quarantine must be decided by the physician in charge.

As a precautionary measure, every member of the household should be treated with antitoxin.

Measles.

Measles appears about ten to fourteen days after exposure. It is a very contagious disease and may be carried by clothing and other objects.

The onset begins with redness and running of the eyes, which are also sensitive to light, discharge from the nose, and a dry cough. The child appears to have caught a severe cold. There is loss of appetite and fever, which may rise to 103° or 104°F. The third or fourth day a rash appears on the face and behind the ears. It consists of small, dark-red, raised spots, which often form groups, and lasts about three or four days. There may be itching of the skin.

The child should be given a hot bath and then be put to bed at once in a well ventilated room, with the shades drawn down to darken it.

Treatment. An older child can wear a green celluloid eye shade such as clerks often use, and which will be found very soothing. The eyes should be bathed every three hours in the day with a warm boric acid solution, one-half teaspoon to one pint of water. Only fluid diet should be given while the temperature is above normal. The bowels must be kept open.

For restlessness or high temperature see treatment under "Pneumonia." When there is much itching of the skin, cold cream or cocoa butter rubbed on the body and limbs will relieve it greatly. If the cough is very severe, treat as under "Bronchitis."

The child should stay in bed three days after the temperature has returned to normal, and
Quarantine. should be quarantined for two weeks thereafter.

The most frequent complication of measles in infants is pneumonia.

German Measles.

This is a contagious disease, which resembles measles, but is not nearly as severe. It makes its appearance in from one to three weeks after exposure, and lasts only from three to five days.

The child becomes drowsy, has slight fever and a sore throat. The rash appears on the first
Symptoms. or second day of the illness; it begins on the face and spreads over the rest of the body. It fades so rapidly that the face may be clear before the arms and legs are covered with it. The glands at the back of the neck are often swollen.

The child should be kept in bed on a fluid diet for a few days, and his bowels should be attended to. No other treatment is necessary in most cases.
Treatment.

The child should be isolated for a week
Quarantine. after the disappearance of the rash.

Scarlet Fever.

The period of incubation varies from a few hours to seven days. This disease is carried by clothing and other objects that have been in contact with the patient. Such articles have been known to cause an outbreak after a lapse of years.

There is loss of appetite, often vomiting, constipation, high fever, 103°-105°F., the breathing is hurried, and there is restlessness, sleeplessness and headache. The throat is inflamed and sore and there is difficulty in swallowing. The tongue is coated, and red at the tip and edges. The rash appears after about 24 hours first on the neck and chest and spreads rapidly all over the body. It consists of small red points, sometimes isolated, at other times blended into a dull, red flush; it lasts for five to seven days. After this the skin begins to peel off in small flakes, especially noticeable on the palms and soles. The peeling may last anywhere from two to six weeks, during which time strict quarantine should be maintained. It is most contagious whilst the skin is peeling.

The most common complications, inflammation of the kidneys and of the ears, are much to be dreaded, and for this reason a physician should be in constant attendance. Before his arrival the child should be put to bed (see chapter on Sickroom). Only fluid diet should be given.

Mumps.

This is a contagious disease which affects the salivary glands, and appears from one to three weeks after exposure.

The child feels sick, chilly, drowsy and feverish. The temperature varies from 100°-103°F. A swelling soon appears below and in front of one ear, which pushes the lobe of the ear out, and feels doughy to the touch. There is also pain in moving the jaws. The other glands below the jaws may be swollen and the face is often distorted.

Very often the gland below the other ear is also affected. The disease lasts about a week.

The child should be put to bed and only fluid or semi-fluid diet given during the next few days. When the pain is severe, hot compresses applied to the parts will be found very soothing. In less painful cases, ordinary cotton batting bandages over the glands will suffice.

Treatment. The child should be isolated for three weeks from the commencement of the disease.

DISEASES OF THE SKIN.

A few of the more common diseases of the skin are described below.

Eczema.

Eczema is characterized by inflammation and marked itching of the skin, which is thickened, moist, and shows crusts and fissures. Serum exudes and soon forms crusts. In children it usually appears on the face and scalp.

The treatment is not very satisfactory, and takes a long time. The child's diet and hygiene must be attended to. As there are so many varieties of eczema, which are often mistaken for different diseases of the skin, it is best to obtain the advice of a physician. The eruption may with advantage be covered with a bland ointment, like Lassar's paste, which can be obtained from any drug-store. Water must never be allowed to touch the eruption, but sweet oil used instead for cleansing purposes.

Eczema of Scalp, or Milk Crust.

This consists of yellow or grey crusts which matt the hair together, and occurs only in infants. The scalp should be soaked with an ointment made of vaseline containing 5 per cent. of resorcin. The hair should be cut short if it interferes with the application of the ointment. An old handkerchief or a piece of muslin should have some of the ointment spread on it and then tied over the child's head, so as to keep the crusts constantly moist. This should be repeated morning and evening for three or four days, when the scalp should be washed with soap and water, and the crusts removed with a fine tooth comb. Severe cases need to have this treatment repeated.

Poison Ivy.

This is an inflammation of the skin marked by intense redness and blisters containing serum and pus and attended by itching or burning. It usually occurs on the hands and face after contact with poison ivy, and certain medicinal substances.

Soothing lotions should be used, such as solutions of sodium bicarbonate or boric acid. Some persons are at once relieved by dusting powders such as bismuth subnitrate, lead acetate, etc.

Prickly Heat.

Excessive heat accompanied by profuse perspiration is responsible for this eruption, which occurs mostly upon the trunk and consists of small bright red pimples and blisters which are crowded together but remain separate. There is itching, tingling or burning.

Light clothing and frequent cold baths are indicated. Cooling lotions or solutions of bicarbonate of soda or boric acid should be applied to the skin, followed by dusting powders, such as oxide of zinc, bismuth, etc.

Hives.

Hives is an inflammation of the skin, characterized by whitish or pinkish flattened or round elevations of the skin marked by intense itching or burning. The elevations look exactly like mosquito bites or the sting of the nettle, they may remain isolated or become joined together. Sometimes there is swelling of the underlying skin, especially about the eyelids. Ordinarily the inflammation lasts from a few hours to a few days.

Hives may be caused by contact with certain plants or the bites of some insects or by certain articles of food, as shell fish, pickles, etc., and certain drugs, as quinine, copaiba, etc. The cause must be ascertained and removed.

Bran baths often relieve the condition. Carbolated ointment applied to the worst spots will at once relieve the itching and burning.

No matter what the cause, a cathartic should always be given.

Scabies, or the Itch.

This is a contagious affection due to the presence of a parasite, which burrows into the skin, the favorite positions being between the fingers, at the elbows and between the thighs. The irritation causes itching

all over the body, which soon shows scratch marks and excoriations.

All clothing recently worn should be boiled or fumigated. All the affected parts of the skin
Treatment. should be thoroughly rubbed morning and evening with sulphur ointment, one ounce powdered sulphur and four ounces lard, well mixed together. The symptoms will speedily disappear in a few days.

Intertrigo.

Intertrigo is an intense redness of the skin and occurs when moist surfaces of the skin touch each other. The inflammation is caused mostly by neglecting to provide the child with clean, dry diapers, but it may be brought about by acid urine or stools, excessive perspiration and friction. The most frequent sites are between the buttocks, between the thighs and in the folds of the groin.

The parts must be kept dry with talcum powder or boric acid powder. The diapers must be
Treatment. changed as soon as they are wet.

A quicker way is to leave off the diapers in a warm room and to expose the inflamed areas to the air for a few hours a day.

Applications of Salvacea are very healing. When this is applied no powder must be used.

FOOD RECIPES.

Take the white of one fresh egg, divide it in several directions with a sharp steel knife, add
Albumen half a pint of cold boiled water, and a pinch
water. of salt. Shake thoroughly, and give it cold, either from the bottle or with a spoon.

Wash one heaping tablespoonful of rice, let it soak overnight, then add a pint of water and a
Rice water. pinch of salt. Boil for three or four hours, or until the grains of rice are quite soft. Water must be added from time to time to keep the quantity up to a pint. Strain it through muslin.

Barley water from the grains is made in
Barley the same way, and in the same proportions,
water. as rice water.

When made from prepared barley flour, or Robinson's Patent Barley, a little cold water is added to one level tablespoonful. This is carefully stirred to make a very thin, smooth paste, and then poured into a pint of boiling water containing a pinch of salt. This should be boiled in a double boiler for thirty minutes, strained, and enough water added to bring it up to the original pint.

One tablespoonful of oatmeal to one
Oatmeal pint of water, boil three hours and add
water. enough water to make a pint.

This is made exactly the same as the
Wheat water. oatmeal water and in the same proportions.

Barley, oatmeal, rice, or wheat water can all be made from the prepared flours, or from the grains, and all are made in the same proportions, and in the same way, as the recipes given for rice and barley water.

These can be made in the same manner, and either

*Gruels or
jellies from
rice, oats,
wheat or
barley.* from the grains or the flour, but the proportions are from two to four level table-spoonfuls of the flour to a pint of water. When the grains are used, two tablespoonfuls are taken, and soaked overnight, then cooked for four hours. They should be strained, and when milk is to be added, it must be stirred in directly after removing the gruel from the fire.

There are two ways of making beef-juice. The first is to take one pound of round steak, cut thick. Broil it slightly, then press out the juice with a lemon squeezer or meat-press and add a little salt. The second method is to have the pound of round steak finely chopped, and put it in a covered jar, then pour in enough cold water to cover it and add salt. Cover the jar and stand it on ice for six hours or more, shaking it from time to time. Empty the jar into a piece of cheese-cloth and strain. This method is not quite so palatable, although children do not seem to object to it, and it has the advantage of being more nutritious and much more economical.

Beef juice can be warmed slightly by pouring it in a small cup, and then placing this in a larger one containing warm water. It should, however, not be warmed enough to coagulate the albumen.

Take one pound of meat free from fat, cut in small pieces, cover with one pint of cold water, add a pinch of salt, and allow it to simmer for three or four hours, adding water is necessary. It should cook down to about half a pint. Strain and when cold, remove the fat. It can be given hot, or in some cases cold, in the form of jelly.

*Mutton,
chicken,
veal and
beef broths.*

A rare piece of sirloin steak is slightly broiled. Then, with a dull knife, this is scraped or *Scraped beef*. shredded, taking only the pulp for use. From a teaspoonful to a tablespoonful may be given, with a little salt.

Cook the prunes slowly in a porcelain saucepan with a little water until they are quite soft. *Prune pulp*. Then strain or rub them through a coarse sieve.

Take one pint of fresh cow's milk and warm it, but not above about 100°F. Add two teaspoonfuls of Fairchild's essence of pepsin, or *Whey*. liquid rennet. Stir for a minute, then allow it to stand until firmly jellied, then break up the curd, with a fork, and strain off the whey through muslin, then pasteurize it. (See Pasteurization.)

This is for older children and is made in the same manner as whey, except that two teaspoonfuls of sugar can be stirred in with the rennet, and that vanilla, cinnamon or grated nutmeg may also be added as a flavoring. As soon as the mixture is firmly coagulated, place it in the ice-box to get thoroughly cold. Do not stir it nor strain it. *Junket*.

Into a sauce-pan of boiling water a fresh egg is placed without removing the shell. The *Coddled egg*. water is immediately removed from the fire, and the egg cooked slowly in it for five minutes. The white should then be of a jelly-like consistency.

Take:

1 pint of flour,
Bran Biscuits. 1 quart bran (straight),
12 tablespoonfuls molasses,
1 teaspoonful baking soda,

1 teaspoonful salt,
1 generous pint of milk.

Mix and bake in muffin rings. This will make about 20 rings.

These bran biscuits are very efficacious in overcoming constipation in nursing mothers. Usually two biscuits a day will be sufficient.

1 quart of water.
Corn meal 1 teaspoonful of salt.
mush. 1 pint of granulated corn-meal.

Add the salt to the water, and when boiling, sprinkle in the corn-meal, slowly stirring all the while. Boil rapidly for ten minutes, then push the kettle over a slow fire to cook for two hours. Serve warm with milk.

This will help to increase the flow of milk in nursing mothers.

Loeflund's Malt Soup can be obtained from Messrs. Britt, Loeffler, and Weil, No. 225 Canal St., New York City, and at most large drug stores.

This malt is indicated for bottle-fed infants who are not gaining in weight, but do not suffer from vomiting or diarrhoea.

It should be used as follows:

Prepare the day's feeding *without sugar*, and use same strength of barley water, viz., in the proportion of one tablespoonful of Robinson's barley flour to one pint of water. Before boiling the barley water add two teaspoonfuls of the malt soup to it. Increase the malt soup by one teaspoonful every day until the bowels become loose, then give one or two teaspoonfuls less thereafter.

The use of this preparation is followed by rapid gain, in some cases.

Only the best buttermilk should be used.

Buttermilk. It can be obtained from the Walker-Gordon laboratories, or other reliable firms.

COMMON REMEDIES.

The following list of weights and measures will be found useful when making up food formulas or giving medicines.

	1 ounce of liquid equals 2 tablespoonfuls.
<i>Weights and</i>	Or equals 4 dessertspoonfuls.
<i>Measures.</i>	Or equals 8 teaspoonfuls.
	Or equals 8 drams.

1 tablespoonful equals 2 dessertspoonfuls.

Or equals 4 teaspoonfuls.

1 dessertspoonful equals 2 teaspoonfuls.

A cup or tumbler equals $\frac{1}{2}$ pint.

An ordinary wineglass equals 2 ounces.

	1 <i>heaping</i> tablespoonful of cane sugar
<i>For measur-</i>	equals 1 ounce.
<i>ing sugar.</i>	3 <i>level</i> tablespoonfuls of milk sugar
	equals 1 ounce.

Common Remedies.

Some children require smaller and others larger doses of cathartics than those given below, but the following amounts should produce at least two good movements six or eight hours after administration.

Under 3 months old, $\frac{1}{2}$ teaspoonful.

Castor oil. From 3 to 6 months old, 1 teaspoonful.

From 6 to 9 months old, $1\frac{1}{2}$ teaspoonfuls.

From 9 to 12 months, 4 to 6 teaspoonfuls.

Older children, 1 to 2 tablespoonfuls.

"Laxol" is the least disagreeable form of castor oil.
(*Do not confuse with Lysol.*)

Under one month old, $\frac{3}{10}$ grain.

Calomel. From 1 to 3 months old, $\frac{3}{8}$ to $\frac{5}{8}$ grain.

After this age $\frac{1}{4}$ grain may be added for every three months of age, making the doses, 1 grain at one year, and 2 grains at 2 years; but more than 2 grains should rarely be given at any age. The tablets should be dissolved in water before administration, and it is better to divide the dose, giving $\frac{1}{10}$ or $\frac{1}{8}$ or $\frac{1}{4}$ grain tablets every 10 to 15 minutes, until the entire amount has been taken, than to give it all at once.

Milk of Magnesia. Phillip's Milk of Magnesia. Dose $\frac{1}{2}$ to 1 teaspoonful, given in the ten o'clock bottle at night.

This is the best laxative for infants under one year old, and can be used for months.

Syrup of figs. This laxative is recommended for constipation in children over one year old. The dose is 1 to 2 teaspoonfuls once a day in the evening.

Citrate of Magnesia. Dose: half a tumblerful early in the morning, for children over two years of age. It is a good substitute for castor oil, when preceded by a dose of calomel, and has the advantage of being pleasant to take.

Syrup of Ipecac or wine of Ipecac. Dose: one teaspoonful, repeated if necessary. Used chiefly in Spasmodic Croup, as an emetic. *No nursery should be without it.* It can also be given when a child eats any highly indigestible food, and it is desirable to empty the stomach.

As mother's milk and cow's milk contain an equal

Iron tonic. amount of iron, and as cow's milk is much diluted, especially in the first few months, an infant often becomes pale and anaemic from want of iron. In this case a teaspoonful of the following mixture should be added to the bottle morning and evening. It is alkaline and will not curdle the milk.

R Iron and ammonium citrate, 1 dram
Distilled water, to make 8 ounces

N. B.—The iron will color the stools dark brown.

Neutral Maltose. Neutral Maltose, an easily digestible form of sugar, manufactured by the Maltzyme Co., of Brooklyn, N. Y., can be used in the same manner as Loefflund's malt soup, (see page 175.)

Liquid Peptonoids with Creosote. Liquid Peptonoids with Creosote is a preparation which can be recommended for coughs in infants and children. It should be diluted with a little water when administered. The doses are given in the chapter on Bronchitis.

It is manufactured by the Arlington Chemical Co., Yonkers, N. Y., and is obtainable at most drug-stores.

Bichloride of Mercury. Bichloride of Mercury is a very powerful antiseptic. It is sold in tablets of $7\frac{1}{2}$ grains each. When dissolved in a quart of water the dilution is 1 to 2,000. It takes $2\frac{1}{2}$ quarts therefore to make a dilution of 1 to 5,000.

As it is very poisonous, the tablets or the solution should be kept out of the reach of children.

Salvacea. Salvacea is an ointment sold in small tins, and can be bought at most drug-stores. It is very healing for wounds, cuts, burns, abrasions, intertrigo, and any inflammation of the skin.

INJECTIONS, SUPPOSITORIES, AND IRRIGATIONS.

Although the use of any of these remedial measures for constipation should never become a fixed habit, as serious harm may result from their prolonged use, still it is important that a mother should be familiar with the different modes of administering them, as in many minor ailments one or the other is often the only remedy required.

Caution against their prolonged use. In a case of ordinary constipation a soap suppository can be used. It is made by cutting out a small piece of castile soap as thick as a lead pencil, and about an inch long. A gluten suppository is equally good, and can be obtained at most drug-stores.

Suppositories and enemas. A sweet oil enema of an ounce or two, depending on the child's age, will also be found useful.

If a more efficient enema is required, mix one tablespoonful of glycerine with three of sweet oil.

The enemas are best given with a small rubber bulb syringe, the rubber point should be well oiled before inserting it and the solution injected slowly.

Whenever suppositories or enemas are used, the child's buttocks must be held together for ten or fifteen minutes in order to get proper results.

When there is much colic, flatulence and a distended abdomen, or at the onset of acute indigestion or illness, it is advisable to give a colon irrigation. This is done by means of a No. 20, 22, or 24 French catheter attached to a fountain syringe, which should be suspended not more than two or three feet above the child's buttocks.

Colon irrigation.

Use water at about 100°F., or as hot as can be comfortably borne by the hand, and add one teaspoonful of table salt to every pint used. The reason for the addition of salt is, that it is less irritating than the use of plain water. The amount to be injected varies for different ages, but enough must be used to clean out the bowels thoroughly. One quart will be sufficient for an infant under six months old, one and a half quarts for a child one year old, and two quarts for a child under four years of age. Children will not retain these amounts, for the greater part of the water is expelled during the irrigation. In some cases soda bicarbonate is used instead of the salt.

The child must be laid on his back on the bed, with a rubber sheet and a thick pad under him.

*How to give
a colon
irrigation.* On the floor should be a basin or pail, so arranged that the water will all run into it from the sheet. The catheter should be oiled its entire length with vaseline, and a little water allowed to run through it into the basin to ensure its being at the proper temperature, then raise the child's legs, bend the thighs, and separate them enough to allow the catheter to be inserted. Never use any force in doing this, as carelessness may cause injury. If the catheter is correctly inserted and as soon as the water distends the bowel, it will slide in without any resistance, often for its entire length, but no attempt must be made to push it with any but the lightest pressure. Very often the catheter is forced out with the water which is expelled from the bowel, it should then be inserted again, until the return flow is clear.

When about half the amount has been given, disconnect the catheter, leaving it in the rectum, and allow the water from the bowels to run out. Pressure

on the lower part of the abdomen will assist in forcing the water out. When the flow ceases, connect the catheter again to the fountain syringe, and proceed as before.

DON'T.

Don't wean a baby because the mother's milk looks pale, like diluted skimmed milk. It often looks that way.

Don't neglect cold hands and feet, as an attack of indigestion, pneumonia, etc., may follow.

Don't swaddle the baby with clothes, so that he perspires, as he is then very apt to catch cold.

Don't forget to attend to the regularity of the bowels.

Don't play with the baby after his feeding, nor excite him at any time, especially before going to bed at night.

Don't make any sudden or unusual noise in the presence of the baby.

Don't take up the baby every time he cries; you will spoil him.

Don't feed the baby every time he cries; you will upset his digestion.

Don't allow friends or strangers to kiss your baby.

Don't allow any one with a cough near your baby.

Don't forget that fresh air is essential to a baby's health.

Don't neglect a "*little*" diarrhoea.

Don't forget to give a child a good dose of castor oil whenever he is upset, and then dilute his food for the next few feedings.

Don't forget that the first sign of a disturbed digestion is often restlessness at night.

Don't coax the baby to take his food; it is poison when he does not want it; let him get hungry and wait for the next feeding.

Don't keep on giving a child the same food when you know it is disagreeing with him.

Don't give a vomiting baby a rich milk mixture containing much cream, or sugar, or proprietary foods.

Don't give a cold bottle to a baby.

Don't begin any change of food by giving large quantities or by making it strong.

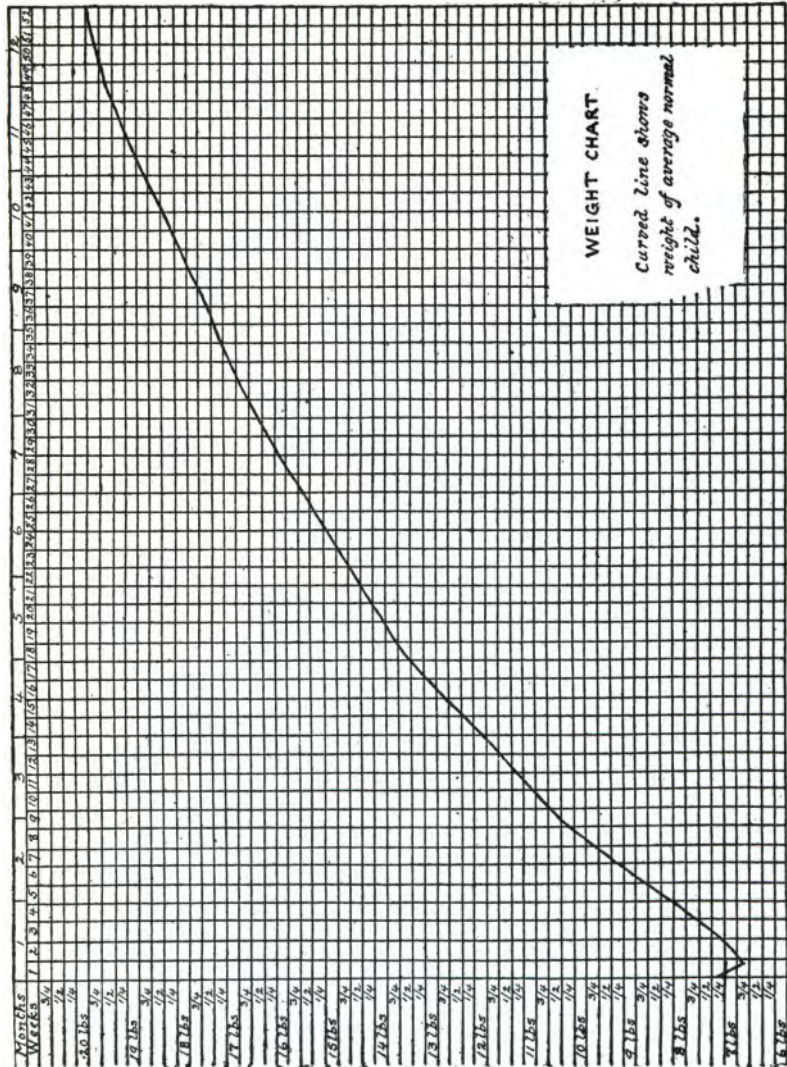
Don't forget to give plenty of water to the baby when the napkins are stained a yellow or brick-red color.

Don't follow your friend's advice; consult your physician.

Don't forget that it is easier to avoid trouble than to cure it.

Don't forget to keep a note book recording the weight, the feeding, and any illnesses.

Don't leave poisons or drugs anywhere within reach of a child.



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PRESS NOTICES OF 1st EDITION.

FROM LEADING MEDICAL JOURNALS.

This is an excellent little book and for its size surprisingly complete. In fact it is crammed full of needful advice and instruction and the author seems to have eliminated all irrelevant material. The appearance of the book is attractive, the form convenient and the arrangement logical. It is one of those books of which we have often said that there cannot be too many, and unlike some of which have appeared, this book of Dr. Tweddell's has been so carefully and sanely done that we can recommend it heartily to all mothers and predict a wide field of usefulness for it.

December, 1911. *Archives of Pediatrics (New York).*

This is a wholly admirable, simple little book, which does not aspire to teach medicine and may be safely recommended to any Mother or Child's nurse.

December, 1911. *The American Journal of Obstetrics and Diseases of Women and Children (New York).*

Mothers, and prospective mothers, often ask a physician to recommend them some small book dealing with the nursing and feeding of infants, and with the management of some of the more common ailments incident to child life. The present volume is well adapted for this purpose; it is written in clear and simple language, and the directions are complete and safe. Most books of this kind tell a great deal too much, and are often as dangerous as they are useful; this little book is an agreeable exception.

February 10th, 1912. *Medical Record (New York).*

PRESS NOTICES (Continued.)

The strongest essential, to our mind, of a book primarily addressed to lay people, is the insistence of a strict definition between the fields of activity of the physician and the mother or nurse. This has been maintained by the author admirably. In other particulars, also, the book is highly commendable. The text is sufficiently comprehensive and we have noted no important omissions. The chapter on infant feeding, probably the most important in the book, is a clear and sensible exposition of the percentage system. We are glad to note that the author is not a warm advocate of top milk. It would by no means be offering an insult in recommending this book to many physicians. The text contains information about the care of infants which does not fall into the scope of text book or even of hospital training and only comes to those long in the school of experience.

February, 1912.

American Journal of Surgery
(New York).

The author has succeeded in producing a book which gives simple, clear and complete directions, easily to be understood by the average American mother. The book can be cordially commended to the hands of every intelligent mother.

May 4th, 1912.

New York Medical Journal.

PRESS NOTICES (Continued.)

Brief, concise and authoritative manual by the Assistant Physician of the Babies' Hospital Dispensary, New York, giving most approved principles and practice in the care, nursing, artificial feeding, common diseases and digestive disorders of children. On feeding it replaces the earlier standard work by Holt, which in its last edition is not so complete or up to date.

Extracts from the American Library Association's Book List, a guide to the best new books, adapted for State use by the League of Library Commissions, May, 1912.

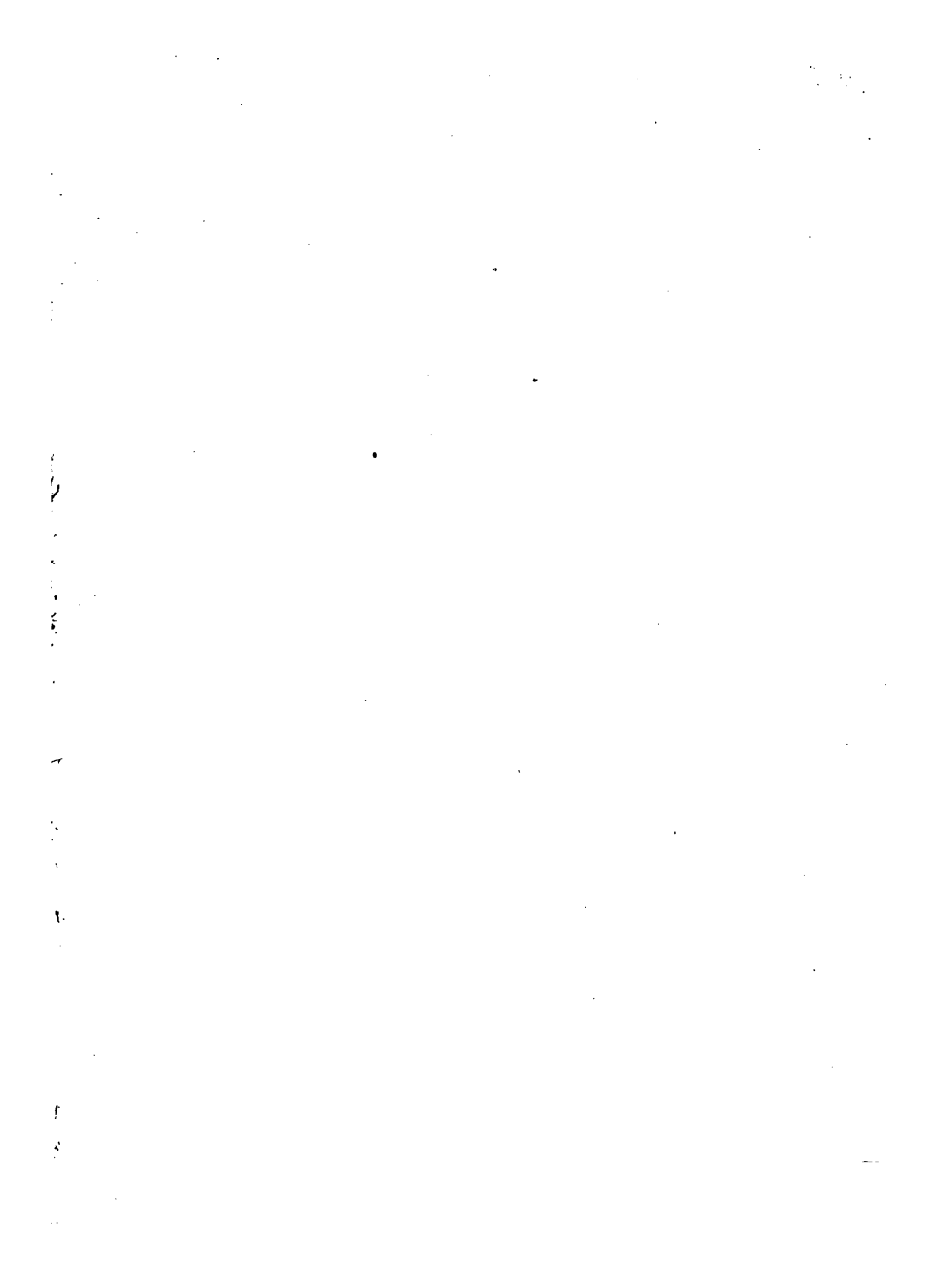
This little book of 182 pages is of decided value. It is intended primarily for the nursing mother and **possesses a wealth of information** very well condensed into clear and readable English. It is not intended to supplant the Doctor as the family advisor or physician, but to give directions to the mother in order that she may take care of her baby in a reasonable and proper manner, as well as to point out the various danger points of infancy.

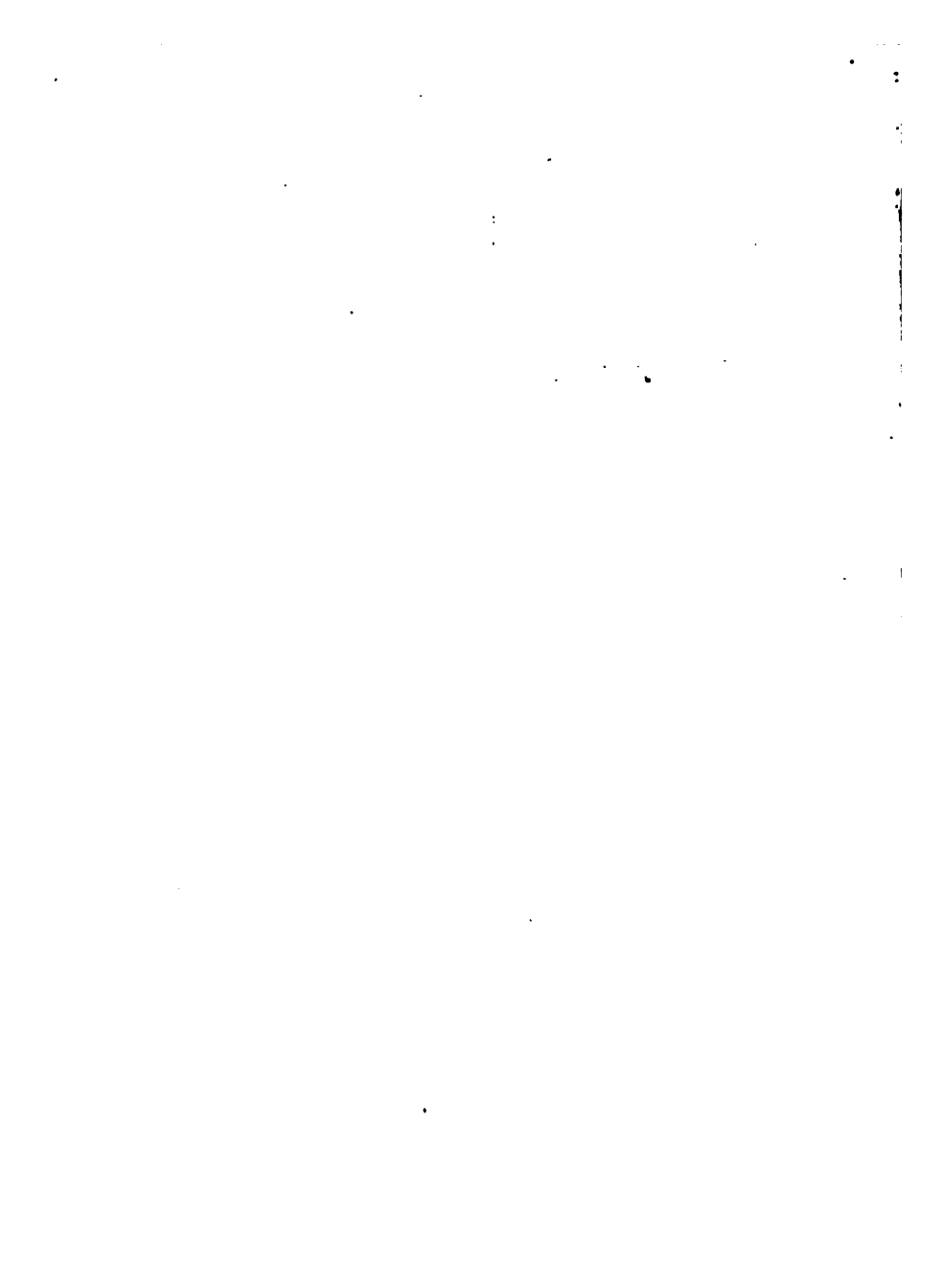
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